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D5.4 Collective energy practices in Europe

ECHOES Report

Collective energy practices in Europe



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	ABSTRACT Case studies in six European countries have assessed to what degree individuals and their individual energy behaviours are influenced by the fact that they grouped together in collective energy-related actions and in collective energy-related structures. The case studies revealed the role of organised collectives in influencing energy consumer/prosumer behaviour and also how they interrelate with the identified energy culture aspects such as energy lifestyles and enabling factors.			
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EXECUTIVE SUMMARY

This deliverable reports the main results of an analysis of the role of organised collectives in influencing energy consumer/prosumer behaviour and of how they interrelate with the identified energy culture aspects such as energy lifestyles and enabling factors. To do so, several case studies were conducted in six countries throughout Europe (Italy, Austria, Bulgaria, Norway, Spain, and Turkey) with the objective to assess to what extent individuals and their individual energy behaviour are influenced by the fact that they gathered in collective energy-related actions and in collective energy-related structures.

The different case studies considered here showed that, although in different ways and to different extent, collectives can have a strong influence on its members, particularly in relation to the change in personal lifestyle. In most of the cases, it is clearly seen how the previous pro-environmental behaviour and concern for sustainability issues has enabled the creation of the collective or the participation in them, even without any support from public institutions. It can also be perceived that the members that were previously aware of sustainability issues are well disposed to changing their behaviour and lifestyle. It can be derived from this that social and environmental activism through organised collectives is a factor influencing energy consumer/prosumer behaviour. After joining collectives, members often change their behaviour towards sustainability, even in areas that are not the core theme of the collective. Some of these changes are small changes in the daily routine, but also changes in other areas of individual energy-related behaviour could be initiated.

Collectives foster the implementation of innovative organisational models and entrepreneurship ideas, serving sometimes as a starting point for a new community and organisational model. Innovation in the field of sustainable energy consumption can be related not only to the development of new technological material devices, but also to the implementation of innovative organisational models and entrepreneurship ideas in the service sector, such as for example the development of more participatory and shared forms of energy production and conscious consumption.

Such new practical and sometimes very locally specific community and organisational models can seed the type of socio-cultural change necessary to facilitate the transition to a low carbon society. They may stimulate awareness-raising which reaches a range of different final users in their specific daily life decision contexts. Local and user-based organisations may assist policy makers in evaluating the benefits of providing support to renewable energy communities.

Some general recommendations could be formulated for policy makers in order to foster and support such collective structures. Generally, the main aim could be to provide a policy framework for small scale actors and collectives that enables to invent and test alternative (i.e. fair, participatory and solidary) economic relationships with mutual benefits for producers and consumers. It has been shown in some case studies that experiences of such collectives may have an impact on the individual energy relevant behaviour also in other areas. Policy support can be particularly effective when:

- Providing financial support schemes
- Offering support in communication and organisational issues
- Raising awareness and promoting information
- Ensuring a secure and consistent legal framework
- Providing a framework for independent development, especially in municipalities
- Promoting the frontrunners, without neglecting the followers

1 INTRODUCTION

The ECHOES project aims at understanding how and why we make the energy choices that we presently do across Europe. In doing so, ECHOES focuses on three technology areas: electro mobility, smart energy technologies, and buildings. We are interested to understanding the factors that shape transitions to more sustainable energy practices at different levels. For example, it is important to understand the choices of an individual purchasing an electric vehicle, as well as the choices of a political system implementing a new support mechanism for distributed renewable energy production and decarbonizing the transport sector. A key goal across the project is to harness knowledge about such choices, through mobilizing different disciplinary and analytical perspectives in order to produce policy relevant advice for the European Commission and its Member States in its quest to realize the goals of the Energy Union.

Work package five is primarily focused on processes at the meso-level of society, where the question of consumer/prosumer behaviour in the energy sector is addressed from a sociological perspective, by exploring: (i) the shaping and performance of so-called “energy lifestyles” across Europe, (ii) innovation and transformation through grass roots organisation, and (iii) the impact of *energy memories*. This work package explores the transformation of energy consumption patterns, energy production and innovation in the context of what we can call “Energy Cultures”. At its core, this approach recognizes that transforming a society’s way of consuming and producing energy cannot be reduced just to a cognitive task, a social task or a technological task. Rather, such transformation requires addressing norms, practices and material aspects in a balanced way. The “Energy Cultures” approach explicitly differentiates between countries (or better cultures). Thus, the energy cultures that we study in ECHOES are situated within specific national and local contexts, and are produced by combinations of material elements, norms and habits. The energy cultures we study are also situated at a temporal location.

The present deliverable reports the main achievements of the activities carried out in **Task 5.6 “Assessment and analysis of collective energy practices at national level”**. The objective of this Task has been to analyse the role of organised collectives in influencing energy consumer/prosumer behaviour and to study how they interrelate with the identified energy culture aspects such as energy lifestyles and enabling factors.

This report contains two main sections in addition to this introduction and the chapter related to methodology. The **first section** includes the description of the case studies conducted at the national level and describing different typologies of collectives, their motivation, values and their influence on their members. It also includes insights for policy makers deriving from the outcomes of the interviews carried out. The **second section** offers a summary of the results of the case studies and draws a set of conclusions and recommendations for policy makers.

Finally, Chapters 5 and 6 include references to sources that are mentioned in this document and the Annex I, respectively.

2 METHODOLOGY

In Task 5.6 several case studies were conducted in six countries throughout Europe (Italy, Austria, Bulgaria, Norway, Spain, and Turkey) and their objective was to assess to what degree individuals and their individual energy behaviour are influenced by the fact that they participated in collective energy-related actions and in collective energy-related structures.

In the scope of this task, energy collectives were defined as “a group of citizens who have joined together as private persons with a common defined and shared target in one of the 3 technology foci (buildings, electric mobility, smart energy technologies), or in other areas with a potential strong indirect impact on energy consumption and behaviour (e.g. farming collective)”. The criteria to select the energy collectives were the following:

- Formal collectives, which are not commercial companies and where the members are private persons with equal rights in the collective.

- Collectives of citizens organised or consulted by professional companies since the focus of Task 5.6. is rather on the dynamics between collective action and individual members' behaviour and less on the formation process of the collective.
- Citizens' initiatives are in the scope if they have the target of developing common energy-related activities. Citizens' initiatives as a form of civil society protest are not in the scope.
- Collectives can be based on (i) a short-term engagement, when the collective activities focus on the development of a collective action (e.g. installation of a PV-collective), or (ii) on a long-term collaboration when collective activities are required constantly and long-term (e.g. agricultural collective). Long-term collaboration might be more likely to initiate discussion processes between its members which in turn might initiate changes in energy behaviour of individual members.

Following the above-mentioned criteria, the case studies were selected to cover all three technology foci defined at the beginning of the project: electric mobility, smart energy technologies and energy in buildings:

Country of case study	Technology foci addressed by the case study
Italy	Smart energy technologies
Spain	Electric mobility
Bulgaria	Energy in buildings
Turkey	Smart energy technologies
Norway	Energy in buildings
Austria	Other – agroecology

In addition, the Austrian case study is focused in agroecology (definition see Case Study Austria chapter 3.6) with the intention to analyse how non-energy-related collectives influence their members and whether this influence reaches energy-related aspects.

Once each country selected its case studies, several interviews were conducted with at least three different members of each collective, including one person involved in the formation of the collective in order to capture the initial motivation and enabling factors.

The methodology followed was based on the main standards of explorative qualitative research with key informants, using thematic content analysis. In all countries, semi-structured interviews were conducted using an ad-hoc interview track (see Annex I), developed for the purposes of the present task. Interviews were audio recorded, after obtaining the informed consent of the participants, and then content-analysed in the original country language by representatives of each country team to identify the objectives and main enabling factors of the collectives, the main motivations and expectations of the members of the collective and the main area and factors of influence of the collective in its members.

3 CASE STUDIES

3.1 Italy

3.1.1 Description of the collective

3.1.1.1 Background

The case study is based on the concept of a “sustainable energy community and energy citizenship” where people can directly participate in the country's energy transition and in a market that has excluded them up to the present. How is it possible to realise an “energy citizenship”? An idea came from the founding members of the renewable energy cooperative society, a collective in the province of Turin, Northwest Italy, which started three years ago (2016) as a start-up based on examples of cooperation in the field of energy sharing. From the beginning of the initial start-up phase, the cooperative was able to create its own model: an open, member-centred cooperative model, in which investors and shareholders are persuaded to become producers and consumers of renewable energy: a real “prosumer”.

“[...] the main objective of our renewable energy cooperative society is to open the market for renewables to the citizen. This clearly we realized it having launched on the market a particularly complete and unique service, whose objective, however, is absolutely attributable to what I said before: to allow the entry into the market of the renewables of the individual citizen.”

Interview Italy, Male Respondent, R1

The challenge of the founding members of the cooperative is to adjust a collective structure to a widespread economic activity. As one of the members of Executive Board states:

“In the field of energy sharing, the concept of an open cooperative is not normal, if we talk about production cooperatives. Even in Europe there are not many models.”

Interview Italy, Male Respondent, R1

The operation of the renewable energy cooperative society is based on the acquisition of small photovoltaic, wind and hydroelectric plants already present in the national territory. The purchased plants are featured on its IT platform giving members the possibility to of:

- subscribing to the shares they select (500 Euro per share);
- building their “virtual plant” with the aim of producing the energy they will consume.

One of the representatives explains the renewable energy cooperative society method:

“Anyone interested to joining our cooperative sends us his/her own energy bill, and we check whether in fact the offer we can make is more convenient for them. Then, we fix an upper limit amount of investment, which is intended to be not a speculative one, but has the purpose of just covering entirely or in part their energy costs. At the end of the year, the shareholders will get a revenue of about the 5% of their investment, which by the way can also have a fiscal credit according to Italian regulations, because we are an official innovative start-up.”

Interview Italy, Male Respondent, R2

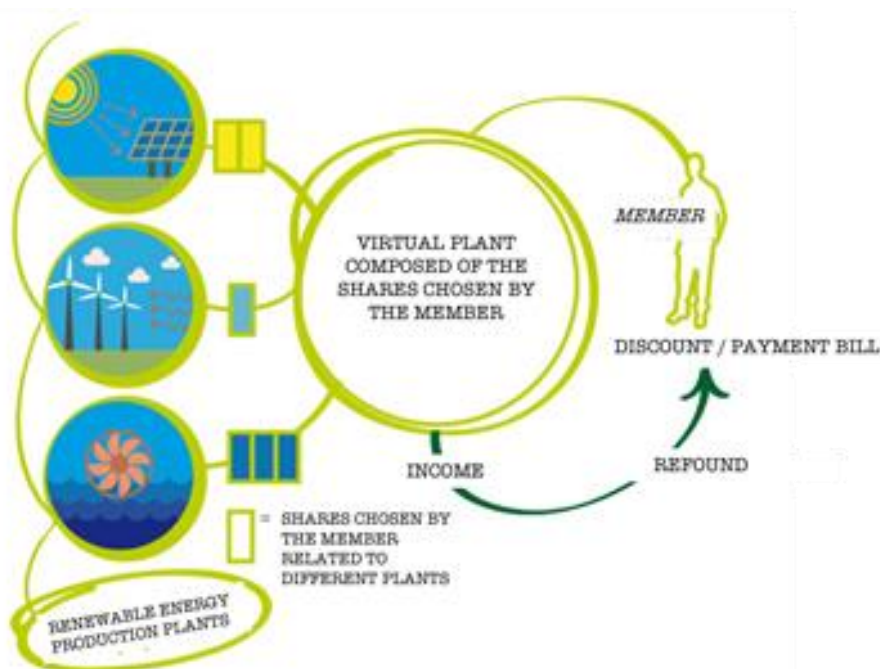


Figure 1- Basic working scheme of the energy cooperative involved in the Italian case study

Currently, the cooperative has 270 members, 13 shared plants and 1.6 GWh annual production. Anyone wishing to become a member of the cooperative acquires some shares of one or more production plants (to build the so-called "virtual plant") based on their own needs and preferences. A person that intends to join the cooperative can choose a plant to invest in and also chooses the amount they wish to invest, all on the internet platform. This platform contains the technical and financial descriptions of the available plants, all located in Italy.

When joining the cooperative, the new member accepts to change his/her current energy supplier, to shift towards a different one, that might be offering more favourable conditions existing in the market at the specific moment. In other words, the cooperative helps its members to look for and select a more favourable energy supplier, according to the specific needs of the single member. The cooperative also helps the member to deal with the bureaucracy necessary for the supplier-change practices and pay the member's monthly electricity bills. At the end of the year, a balance is made between the cost of the energy consumed by the member and the profit produced by the virtual plant purchased. The citizen, as a cooperative's member, will be able to count on a 100% renewable and certified energy supply at a lower price than the market price, with the certainty of having invested in renewable energy sources and obtain a 5% yearly return on their investment which can partly or entirely cover their energy bill, according to the size of the initial investment.

3.1.1.2 Motivation and objectives of the collective

The mission of the collective is developing and spreading an innovative, shareholding/participation-based and democratic model in the national territory, which gives the chance for every single person to become producer of his/her own 100% renewable energy and to reduce his/her energy bills by sharing the renewable power plants' ownership and production. In this way, consumers can easily become "Energy Citizens" or "Prosumers", which means they can consume goods they directly produce.

The collective shows a deep commitment and motivation for empowering people and encourage common citizens to invest in the energy sector and changing their mindsets about daily energy choices. It also aims at building a growing network of people who directly contribute to the transition towards renewables in Italy, and on promoting a new role of citizen as an "energetic prosumer" that directly produces clean energy and actively participate in the energy transition in Europe.

3.1.1.3 Energy-related technologies used by the collective

The collective's core activities relate to the production and consumption of renewable energy based on the acquisition of small photovoltaic, wind and hydroelectric plants already present in the national territory.

3.1.1.4 Engagement of the members in the activities of the collective and social interaction within the collective

All members are involved and made aware of the task related to managing the technical side of running solar photovoltaics (PV), wind turbines or small hydro-electric solutions, from which investors draw power. That is, the members are informed about the technical characteristics of the plants, and sometimes are also led to site visits to the specific locations where the plants are. In parallel, they help each other learn how to better manage their consumption, by sharing information, advice, and good practices related to domestic consumption reduction, and a smarter and more sustainable use of electric devices in the house. This happens both formally, during the periodical assembly meeting (once a year), as well as through the cooperative website platform where there is a blog, a user-feedback section, and a FAQ section, and informally through peer-to-peer communications among single members. In addition, the members of the collective interact with each other through the mediation of the cooperative management. However, they are not isolated from each other, because they can also directly interact and share experiences both personally during the periodical cooperative meetings, and virtually through the website platform tools.

3.1.1.5 Values and culture of the collective

The main organisational culture and shared values of the cooperative refer to the promotion of the renewable energy transition, to be achieved by a more sustainable, aware and inclusive energy lifestyle.

The members of the renewable energy cooperative society have different know-how, knowledge and skills and not all of them have specific experience in the domain of renewable energy. A common value that can be seen in all the members is that of doing something important against climate change, by demonstrating that an alternative to the status quo fossil fuels energy system is possible.

In organisational terms, the decision-making process is in line with the usual procedures of the cooperative movements, where the members assembly meets periodically to take formal strategic decision, and the cooperative board refers and informs every single member about decisions and management in general. In addition, there exists the Executive Board of the Cooperative which comprises of seven members, and a further five delegates with different responsibilities constitute the management team.

3.1.1.6 Enabling factors for the foundation of the collective

However, despite the success reported by the interviewed subjects, it was not easy to identify single enabling factors beyond the specific motivations and enthusiasm of the founders and early subscribers of the cooperative investment. A specific point could however be mentioned, which refers to the fact that investors that decide to join the cooperative could have fiscal credit, because the cooperative was officially recognised by Italian authorities as an "innovative" start-up, and this provides investors to get a tax credit, according to current Italian regulations.

3.1.2 Main outcomes of the interviews

The following table offers an overview of the persons interviewed in the Italian case study.

Respondents	Age	Sex	Professional status	Family status	Role in the collective
R1	>55	M	Manager	NA	Proactive
R2	19-34	M	Manager	NA	Proactive
R3	45-54	M	Self-employed	NA	Active
R4	>55	M	Retired	NA	Active and supportive

3.1.2.1 Main motivations and expectations of the members of the collective

The main motivations of two of the founding members (representative of the executive board and representative of the management team) when they started the renewable energy cooperative society were mainly related to the personal value of environmental sustainability and individual interest in sustainable practices towards innovative approaches of renewable energy sharing.

"Surely the main motivations are linked to a whole series of values that I share with the cooperative. Therefore, it is a choice based on personal values. Certainly, the main value is environmental sustainability, to which I am particularly bound in a personal way."

Interview Italy, Male Respondent, R1

"I liked the domain of renewables, but I was not able to get there by myself. So, we had to get there together, and we had to find a way to get there. The other idea was to do something that was useful."

Interview Italy, Male Respondent, R2

Both respondents recognise a deep interest in environmental issues such as global warming, and the possibility of adopting more sustainable lifestyles. They are people who have always adopted energy saving attitudes in their daily lives and have maintained pro-environmental behaviour. This aspect has led the two founders to search for an experience that would allow them to spread and share their environmental values.

From the combination of these two main motivations comes the idea of creating a sustainable energy co-operative community that could involve a large number of people who would otherwise not play a leading role in the energy transition. This energy co-operative community is planned as an open reality in order to allow as many people as possible to invest in renewables, and to enable those who may otherwise be economically marginalised to benefit from the possibility of having cheaper energy bills. Based from their point of view, this co-operative energy society is intended to primarily benefit their members. Interviewees highlight also economic motivations as added drivers.

"Another aspect is the economic one, because actually, if we see the environmental utility, the environmental sustainability and what could be the economic benefit that the member derives associating himself with the cooperative..."

Interview Italy, Male Respondent, R1

Specifically, they mentioned economic motives that range from helping energy consumers save money through reducing energy consumption, to generating income for a community group or the wider community, creating new job opportunities. Economic motivations seem at the moment to be the first means to offer potential members the reason for "wanting to make a socially responsible investment" by the participation in the socially-valued task of increasing citizen involvement and acceptance of renewable energies in the present-day society. This modality is suitable both for people who "are interested in environmental issues and want to do something to contribute but are not sure of what", and to increase sensitivity in those who do not adopt pro-environmental

behaviours. Citizens' involvement and expanding acceptance of renewable energy consumption represent also valuable motivations for interviewees with the purpose of extending societal concern on renewable energy production and consumption:

"a member more attracted by certain economic reasoning, but it is true that tomorrow, instead, he should be more attentive and more sensitive perhaps to the environmental aspects, because being within a community that makes him understand certain things [...] the cooperative pay my bill, they give me the tax credit, they give me an utility on my investment, but the important aspect is that for my house I have a 100% renewable supply, I am part of a community that self-produces energy and somehow invests my savings in tangible productive assets that are needed to create renewable energy".

Interview Italy, Male Respondent, R1

From the point of view of the two active members recruited for the case study, the principal motivations for joining the renewable energy cooperative society are identified in economic and environmental sustainability reasons. Both members recognize themselves as persons with a green lifestyle and a specific attention to energy consumption and respect for the environment.

"...basically, there was also a reason ... let's call it "green". Every day there is a sensitivity to environmental issues and a certain perceived impotence, at least as an Italian citizen today, in contributing to the sustainability cause."

Interview Italy, Male Respondent, R3

"I have always tried to teach my children a certain type of pro-environmental behaviour and a certain sustainability lifestyle...[...] I was interested in doing something for our planet without distorting my everyday life, but doing acts able to save energy or, in any case, produce clean energy."

Interview Italy, Male Respondent, R4

The advantage in terms of saving costs on the energy bill and support in managing costs and consumption relating to one's own domestic energy expenditure is underlined as a reason that has definitely convinced them to rely on the renewable energy cooperative society. This aspect is clearly expressed by the interviewees.

"...there was certainly an economic motivation, because the utilities for the member are quite important from the economic point of view, also thanks to the law on tax deductions."

Interview Italy, Male Respondent, R3

"becoming a member, you can invest money and have a sort of control over your investment. Even from the financial point of view it seemed to me that, moreover, it was a very convenient mechanism."

Interview Italy, Male Respondent, R4

Generally, respondents reported that their expectations when joining the collective have been met and stated that they felt and received significant benefits from being part of the collective until now. Being active members, for the two representatives interviewed, means promoting the renewable energy cooperative's activities and making other people aware and proud of taking part in an organisation that allows them to pursue their own sustainable lifestyle. Members had the opportunity to use electricity from renewable energy sources. By joining the collective, they became owners of the plants that produce energy for their homes. The expectation of being able to contribute personally to the global energy transition is thus satisfied. The intention to also be able to achieve economic savings has also been realised:

"My expectation is the one that then occurred, it consisted in viewing the financial flows that I expected and so it was. I complete my tax returns, I got my tax deductions and, as a member of the cooperative, I saw my bills paid on time without ever having any problems. I would say that expectations were exactly and completely met."

Interview Italy, Male Respondent, R3

From the point of view of the founding members, the expectation of being able to invest financially in something useful for environmental sustainability and the idea of creating an innovative and useful service was also met.

“...our energy cooperative confirmed that the product is right, works, it is unassailable and correct. Indeed, it has a whole series of positive aspects that make it suitable for different interests. Any member can turn this product - the service the cooperative provides - as it wants and adapt it.”

Interview Italy, Male Respondent, R2

The renewable energy cooperative society has in a few years acquired a local and national visibility even beyond the initial beliefs of its founders. The overall level of satisfaction and enthusiasm reported is touchable.

3.1.2.2 Influence of the collective in individual energy behaviour and lifestyle

The engagement of individuals in the collective seems to have influenced their lifestyle. In fact, some of the respondents affirm for example that they have changed harmful habits or reinforced good habits adopting more environmentally friendly behaviours also in other domains of their daily life choices, not only in their direct energy consumption. They mentioned changes in housing, recycling or mobility choices. A common outcome for all respondents is that they perceived the renewable energy cooperative as a means of diffusing sustainability policies. A major sensitivity and attention to a whole series of aspects related to environmental sustainability is recognised as consequence of joining to energy community. Engagement with a renewable energy collective production network increased the individual awareness and acceptance of renewable energies in general, encouraging also a personal reflection on the links between individual behaviours, energy consumption and generation, prompting sustainable behaviour change such as energy conservation. In addition, respondents claim that their experience in the renewable energy collective offered them new ways to perceive and reflect upon one's own personal energy lifestyle, as well as to develop a more aware knowledge of present-day systems of energy generation and supply. Among the factors influencing and favouring the change of individual lifestyles according to the case study analysis we have done, we could list various issues, reported by the respondents, such as:

- finding opportunities for meaningful social interaction in the cooperative experience (e.g., knowing other people, sharing experiences and good practices);
- change of mindsets about daily energy behaviour (e.g., acquiring new and more complete information on renewable energy production);
- finding new drivers for maintaining a sustainable lifestyle (e.g., improving strategies for reducing domestic consumption and related CO₂ emissions).

3.1.2.3 Evolution of the collective as influenced by its members

After the initial launching phase, the experience and the evident success of the start-up initiative induced the founders to carry on in their goal of motivating citizens to invest in and share renewable energy facilities. Starting from the awareness that the model of this cooperative has branched out across Italy, getting through to the interest of people from 14 Italian regions, the founding members are evaluating the opportunity to also launch a similar cooperative's in other EU countries. In particular, they are in the phase of launching a similar initiative model in Malta.

3.1.3 Insights for policy makers

The insights for policy makers are described based on the following questions:

- ***Why could the collective analysed in this case study be interesting for policy makers? How can the impact of the collective on individual energy-related behaviour be summarised?***

The main insight for policy makers could be the fact that the innovation in the field of sustainable energy consumption can be related not only, or not necessarily, to the development of new technological material devices, but also to the implementation of innovative organisational models and entrepreneurship ideas in the service sector, such as for example the development of more participatory and shared forms of energy production and conscious consumption, which need to be supported and incentivised by authorities and policy makers.

The renewable energy cooperative organisation described in this case study represents precisely such a kind of participatory and shared form of energy production and conscious consumption. It is in fact a good example of a renewable energy collective, representing a starting point for a new community and organisational model that can seed the type of socio- cultural change necessary to facilitate the transition to a low carbon society. The renewable energy cooperative society is a practical, multi-faceted and locally-specific means of awareness-raising which reaches a range of different final users in their specific daily life decision contexts. This particular organisational model also takes into account the socio-cultural ways in which opinions related to personal behaviours, sustainable behaviour change, energy consumption, generation and conservation, are formed in the social reality. Local and user-based organisations such as the one reported here would assist policy makers in evaluating the benefits of providing support to renewable energy communities and allow an informed analysis of their contribution to meeting the high EU level energy policy goals.

- ***What are possible policy measures to support this specific type of collective (materials aspect), based on the problems, barriers and opportunities identified by the collective members?***

In terms of possible policy measures that would support this specific type of collective approach it would be advisable to provide more formalised supply of expertise, advice and financing programmes, as well as ensuring that regulatory issues can be easily understood by any relevant stakeholder group in the energy production and consumption sector. Policy makers can lead the way in communicating about the benefits of the renewable energy cooperative society, highlighting not only the economic benefits for those who get involved, but also the broader societal opportunities that could eventually be caught, and challenges that could be overcome, by a more shared and massive adoption of this organisational form of renewable energy production and consumption.

- ***What are possible policy measures related to awareness creation and values (norms aspect)?***

Going beyond the experience of the specific local case study we describe here, it is important to outline that community-based energy production and consumption could also be promoted and upscaled through more systematic national policy schemes, and thus for example be included in national energy policy development strategies, to make clear the link between renewable energy and national challenges, such as energy poverty and insufficiency also in less economic advantaged areas, such as for example rural areas in Southern Italy.

3.2 Spain

3.2.1 Description of the collective

3.2.1.1 Background

The collective is a cooperative which offers mobility services, currently carsharing of 25 electric cars, 1 van and 2 cargo electric bikes in 10 municipalities of Catalonia. These cars can be either owned by the cooperative or by individuals, companies and public institutions (p2p). In the future, they would like to offer carpooling and ride-sharing, too. It offers its services through a digital platform (using a web-app) to citizens, companies and public organisms, such as city councils. This app allows the members of the collective to make reservations, open and close vehicles. The collective is composed of 1,378 members, assembled in local groups to ensure that it is the people of each municipality who promote and adapt the mobility services to the realities of each neighbourhood, town or city. Some of the local groups do not have a vehicle yet.

The collective started in 2015 in Mataró, capital of the comarca of the Maresme, a city (122,000 habitants) located 30 km from Barcelona, in Catalonia. A group of people lead by R1 and R2 started to meet in a co-working space at Can Fugarolas. This place is an innovative proposal that rehabilitates a disused industrial warehouse, with a total of 4,000m² and a large outdoor patio. The space includes a selection of social, cultural, artistic and neighbourhood initiatives of various collectives. There is also a small business incubator.

At the very beginning they met once per week, then R1 met R2, who were already friends, decided to meet daily due to their personal situation and higher availability. During three or four more months they worked on the idea, the concept, the core.

In 2015, it was still not clear which was the goal and business model of the collective. In 2015, electric mobility was not as evident in Spain as it is today; in those days, electric cars were very expensive and there were very few of them. The first idea of the collective was to do carsharing among them using the cars that they already had. But this idea did not last long, moreover, there was already a company in the area using the model of a social car¹. The collective also realised that this mobility model was not ambitious enough and it was going to remain small. Therefore, in 2016 they tried to build a model for the future based on electric car sharing.

They found information on the internet that there already was an app to share electric vehicles in Belgium. At the same time, R3 was more involved in the project and another person, who was also part of the co-working environment, joined the collective. This group of four people started to work daily in the project for one year. In 2018, they received a grant from the Generalitat (Catalonian Government) and more people joined the collective as workers. Once again in 2019, they received the same grant which supports the “extended” team.

They believe that the project will receive European funds (they have applied for funds in March 2019), because although the European Union encourages electric mobility, empowerment of citizenship, and energy transition, they think that there are not many projects that combine all.

“It is true that we have arrived late because the carsharing has long since arouse in Europe and the electrical issue, too, all is over, but there are no projects about citizenship and everything that is done in The Netherlands and Germany are micro-communities that share cars by WhatsApp, with an excel, with a service contract, but there is no collective, no entity that is empowering citizens to make the transition and it is precisely this that was very clear for us from the very beginning, that is what we wanted to do, as we wanted to be the engine of change and technological empowerment for that transition because we saw that many changes are coming, such as the autonomous vehicle...”

Interview Spain, Male Respondent, R1

¹ The model is base on peer-to-peer car rental.

The collective is currently present in ten Municipalities of Catalonia. In some of them, the collective has only one car, as a pilot, like a seed for the future. The “real” carsharing started with two vehicles.

R1 considers the collective as a tool to aggregate demand. The collective offers mobility services to companies, municipalities and citizens. During the working hours, companies and municipalities are the main consumers, and on the afternoons and weekends the cars are mainly reserved by citizens.

“It has a lot of sense from the point of view of the circular economy, of the efficient resources to optimise public investment in mobility. All are advantages. I see few disadvantages... the materials issue ...the batteries... We share our critical vision: we cannot go from one combustion car to one electric car, we have to make a decrease in mobility.”

Interview Spain, Male Respondent, R1

The collective is a legal cooperative, that currently has 1,378 members, the technical team has a staff of ten workers (partly or full time) and the Governing Board is composed of seven people.

“The number of members is rising at a good pace, the idea is that the more members the better, because it is more people who know the project and are connected and are with the idea of sharing and making mobility more sustainable, and that's what we are working on: to be able to grow, make the cooperative grow and make the cooperative reach more people.”

Interview Spain, Male Respondent, R1

To become member of the collective, 10 Euro must be paid in one initial payment. The intention of the collective is to reach as many people as possible and that is why this price agreed upon, trying to avoid that some people could not participate (the initial capital to be invested in other energy initiatives is normally 100 Euro). To use the vehicles there are different tariffs depending on the pre-payment done, number of days/hours, kilometres. Membership is required to make use of the vehicles.

Even though some members have invested some money in the cooperative, they do not have any additional power in the decision-making process. They are treated equally.

“When we started to deal with mobility, to generate mobility services collectively, mobility is very expensive and requires the effort of the collective, either by participating, or by buying debt from the cooperative, thus there is a role of people that lend money to the cooperative in exchange for an annual economic return”

Interview Spain, Male Respondent, R2

Last year, 888 people used the vehicles and did 10,086 reservations. There were 20 local groups, but only 11 municipalities have vehicles. These vehicles ran 379,030 km, consumed 28,537 kWh and save 45.48 tons of CO₂.²

3.2.1.2 Motivation and objectives of the collective

The main objective of the collective is to reduce the use of private cars.

“To use a shared electric car, you do not need to remove all your cars, it's just to eliminate one. If you're a family that has three cars, you can remain with one or two. That is already a decrease.”

Interview Spain, Male Respondent, R1

The vision of the collective is that if there must be cars on the streets they should be electric and shared ones. If someone wants to have a private combustion car this person would have to pay for it. Most of the cars of the collective are inside underground car parks in order to avoid the use of public space.

² Data from May 2018 to May 2019 (one year)

The collective is negotiating with municipalities to put charging points on the streets for electric shared vehicles. It is the case of Mataró where the city council has installed some double charging points, and this allows a different logistic for the people of the local groups in charge of this activity.

"It has caused some changes in the daily management, in the logistics management and there are some different activities in terms of times in terms of schedules."

Interview Spain, Male Respondent, R3

For the collective, mobility is considered as strategic as electricity is. When citizenship becomes aware of how important it is, the relationship between the economic power of the companies and society changes. R1 shows his happiness with the achievement of this awareness through the collective:

"(...) very happy to have set it up and with the feeling of it (the collective) can be a very good vehicle for public administration, and even for the empowerment of communities."

Interview Spain, Male Respondent, R1

It is also pointed out that another main objective is to generate a work and business opportunity but from an approach that favours a different mobility model, based on electric and shared cars.

When the collective was founded other similar collectives already existed in the field of energy and telecommunications. The sense of "the collective" is to be an empowerment cooperative, that is, the cooperative provides citizens with tools and knowledge. R1 is an enthusiastic of the "the collective".

"(...) For us it was logical to create the collective; not only logical, it is also cool to create other collectives for strategic issues such as food, and others who could be set up. Now many collectives have come out. What connects us with [the collectives dealing with energy and telecommunications] is that we are non-profit cooperatives of consumers that is very different from making a cooperative of workers."

Interview Spain, Male Respondent, R1

The clearest model of the collective is an energy-related collective³. The collective uses the good practices learned in this previous experience, as many of the analysed mobility collective members were also involved in the energy-related collective.

Although sometimes this kind of citizens' initiatives cannot find a channel to collaborate with public administrations, in this case, the public administration feels comfortable with them and uses them as a tool to carry out projects encompassing citizenship, business and public administration.

3.2.1.3 Energy-related technologies used by the collective

The collective has a large concept of sustainable mobility. As it is already mentioned previously, the idea of sustainable mobility is larger than the services currently offered by the collective, but this is due to the fact that they cannot do more with the resources of the collective. Therefore, they have centred on car sharing. In addition, many municipalities, such as Barcelona, are implementing a public service of electric bicycles that has had a boom in the last two years. In the past, the analysed collective made collective purchases of electric bicycles, but they are progressively making fewer purchases and will eventually abandon them since these bicycles can now be easily found in the market at affordable prices and as public services in some municipalities.

Currently the collective has 28 electric vehicles: 25 cars, 1 van and 2 cargo bikes.

³ A non-profit energy consumption cooperative founded in Catalonia in 2010. They are committed to promoting a change in the energy model to achieve a 100% renewable model. This collective started with 150 associated members and currently are 58,000 associated members, almost 100,000 contracts and 3.700 producers)

“At the beginning our vision is a neighbourhood where 100 neighbours share ten cars, five bikes and three vans (...) we are focusing on the car because we already have a lot of work with that and the first thing that we have to do is to settle in the car sharing model.”

Interview Spain, Male Respondent, R1

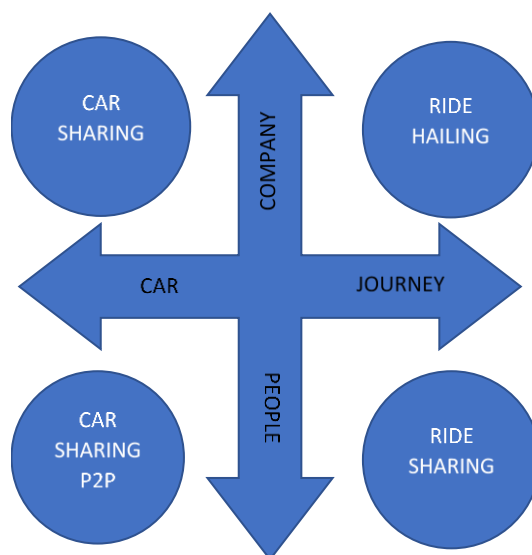


Figure 2- Types of mobility

Their business model includes a fleet of own cars, but also include private cars that the owners release by hours (on their disused hours).

“For example, we are currently negotiating an agreement with a company: they want a van for four days a week. Therefore, the agreement would be 60% - 40% on all the expenses: investment, maintenance, etc. For us this is a success because it is a company that is resolving its mobility and is seeing that it has a surplus of 40% of the time that can be released for other users. We have this exceeded time for our members.”

Interview Spain, Male Respondent, R1

The access the services of the cooperative is not as equal as they wish to be: to open or close the vehicles members must use their own smartphones.

“This is a barrier for older or humbler people, and it is a subject that we have to discuss.”

Interview Spain, Male Respondent, R1

3.2.1.4 Engagement of the members in the activities of the collective and social interaction within the collective

The cooperative is composed by its members, the General Assembly, the Governing Board and the accounting auditor. The **General Assembly** is the highest governing body of the cooperative where each member of the collective has a vote. The members of the **Governing Board** and the accounting auditor are elected by the General Assembly. The Assembly is also in charge of approving the annual strategic plan of the cooperative, monitoring the management and evaluating the results.

The Governing Board consist of three people elected by the Assembly who assume the functions of President, Treasurer and Secretary of the cooperative to promote the development of the guidelines set by the Assembly. They hold office for a term of three years and can be elected for a second term. The Governing Board also includes representatives of the technical team. They meet every two months.

The **accounting auditor** has the mission of tracking (and informing the Assembly) of the economic management, the balance sheet, the income statement and any other accounting document. It is designated for a term of three years.

The collective operates in Catalonia under a proximity logic: it offers its support to the people of a neighbourhood or municipality who decide to use a more sustainable mobility model. To do this, the collective has created local groups and connectors. The **local groups** are composed of people, entities and town councils that, voluntarily, make the project of the collective take shape, grow and get closer to the different local realities throughout the territory. The Local Groups are the soul of the cooperative. The **connectors** are members that engage with the cooperative to revitalise the local group of a territory or with the aim of establishing a local group.

"We are working with the tools that allow the people of Terrassa achieve that the cars are in Tarrasa and that is really the case. We are not progressing. We have only forced a bit, for example, in Barcelona because we want to try, because in Barcelona it is hard, because people have the mobility issue more resolved and are more disconnected, and those who are very activists in Barcelona can already move out of the car. So, for them, the collective is not such an interesting thing. But in the other territories, for example, in Olot, where there are three cars and it is a small city and we do not expect that there is a group of very powerful activists, ecologists with a lot of awareness, and as it is a territory that the car is needed to move, they are people [the local group and connectors] who have turned to make this happen."
Interview Spain, Male Respondent, R1

All the members of the local groups, but especially the connectors are in charge of the following activities:

1. To intensify the intareaction within the collective in their environment and their territory: each local group decides how to do it (participation in exhibitions, organisation of talks on issues related to sustainable mobility, tests of electric vehicles, etc.).
2. To increase the number of members in the territory in order to increase the resources and have more electric vehicles available.
3. To manage and take care of the local group's electric vehicles (especially cleaning issues).
4. To encourage and advance, as far as possible, with collaborations and agreements with binding actors in the territory, with the support of the technical team of the cooperative.
5. To coordinate/contact with the technical team of the cooperative and the Governing Advisor.
6. To support other local groups: in dissemination, transfer of knowledge and experiences, etc.

All these activities are voluntary, the members do not receive any remuneration. However, a protocol has been established by which certain activities such as cleaning or car care are rewarded with hours of mobility.

"That kind of things that are more related to the management, maintenance of the car, will have a bonus in hours of mobility. There is a table with equivalences and see that you have dedicated x you have x hours..., but talks, exhibitions, everything that is more activism, more dynamic than perhaps at some point may have more value than the other, will not have a bonus. We have bet that it is activism and that each one does what he feels he wants to do."
Interview Spain, Male Respondent, R1

The **technical team** is currently composed of 10 people with different roles: coordination, management, programming, management of the ERP⁴, management of the app, dissemination, operative, design, strategy, and positioning.

The technical team works for the cooperative almost part-time, but some of the technical team members work full time. The members of the Governing Board also spend part of their free time in the cooperative, at least 2-4 hours each month.

Some members of the collective, mainly the connectors, invest 15-20 or more hours per month in the project. It is key for the project to personalise or compensate the connectors for these tasks to avoid the risk that those connectors would leave their volunteering work.

“There are members between those extremes, who spend 7-8 or 10 hours per week to those who dedicate a couple of hours per month in an informative activity or in a meeting or whatever.”

Interview Spain, Male Respondent, R3

The interaction inside the collective is done by different social networks, such as Telegram or WhatsApp. There are different groups in these platforms to share information, take some practical decisions, organise some aspects of the technical team, the Governing Board and/or the Local Groups. There is a bulletin for all members distributed by a mailing list.

The members are not engaged at the same level in terms of time. It depends on the member's choice. Some of them are very active and others only use the vehicles occasionally. The collective holds a General Assembly once per year. The connectors also meet at the connectors' event once per year. In this event they share good practices, successful cases, etc.

Although all the members have paid the same fee for belonging to the cooperative and there is a rule of one vote per person, there are some members who have voluntarily invested money in the cooperative, as a form of crowdfunding. In addition, depending on the hours of use of the vehicles as users, each one pays the stipulated rates. Usually municipalities, universities and other companies pay for having a vehicle reserved in a certain range of time, generally working hours.

The collective also organises two fun events: a rally (with electric cars) and a hackathon.

“A rally of cars where the one that consumes less wins, in the last one we were 16 cars and some of the teams were formed by local groups, (...) it is also a space to share, to explain, to know each other..., open to everyone. The other event is a bit geekier, but we are a very technological community it is a Hackathon with the University of Mataró.”

Interview Spain, Male Respondent, R2

3.2.1.5 Values and culture of the collective

At the very beginning they wrote a “Manifesto” with their vision on the mobility issue: *“the most sustainable route is the one we do not do. And if we must do it, whenever we can, the trips must be on foot, by bicycle or by public transport. We want to transform mobility based on the use of the private vehicle into a mobility where the vehicle and the journey can be shared by spreading people and groups to build efficient and sustainable transport models. Today, new technologies and advances in alternative mobility formulas allow for the design of a decreasing mobility model in the number of vehicles and in CO₂ emissions”*. The Manifesto avoids that new members want to change the core values or the main objectives of the collective.

⁴ Enterprise Resource Planning

The main objective of the collective is to make the project survive, so they are prepared in the case they do not receive (or receive less) public funds. The technical team is growing by the new funds, but in the future the number of workers could decrease without affecting the survival of the project. Consequently, these funds are being allocated to generate much more agile and automated processes, foreseeing that one day the structure would decrease.

"In the end, if the collective has to close, the project continues in the local groups, perhaps they may not have the support, but I would have a hard time understanding that they will stop. They have worked before and then they will continue with it, it could be that in another way, from another model..."

Interview Spain, Male Respondent, R2

Another value of the collective is not to make use the dirty manners of marketing and be very transparent in their carsharing prices. The electric carsharing is nowadays expensive, but they have adjusted the prices as much as possible, without hiding anything in small print.

The collective has the opinion that nobody will come to solve climate change on our behalf, that each person must act to avoid it. They believe in the power of citizenship through their votes, consumption and involvement.

"We want to grow, we want to have an impact and we want energy transition. We want to help make an energy transition ... We believe that the more people share electric vehicles the better."

Interview Spain, Male Respondent, R1

They have a local perspective inside their culture: not only the groups are founded locally but the cooperative has an economic model based on that 85% of the income remains in the local groups and they reinvest it. Likewise, to have a car, 85% of the cost is defrayed by the local group and 15% by the collective.

Another of the values of the collective is to share the model, to spread the benefits of a more sustainable mobility. One example is that they are working on a software, the RP. It is open source and they are working to make it available to other cooperatives.

"A worldwide software makes it relatively easier for other European cooperatives to get it too. But there is a lot of work to develop modules for carsharing issues and it makes a lot of sense that everything we do we share, but in the end, it is much more work, but we do it with the idea that it will be replicable."

Interview Spain, Male Respondent, R1

A distinction to other traditional cooperatives is that there is a mixed work team between the Governing Board and the technical team because they saw that in the abovementioned energy-related collective the fact that the Governing Board has the decision-making power but that the technical team is the executor body had caused many tensions. They needed a connection between these two bodies. Therefore, they consider necessary that the Strategic Plan of each year comes out of the joint work between the technical team and the Governing Board. Because if there is dissonance there are tensions in the end.

Transparency and listening to their members are other values of the collective, so they are currently working on tools to improve the participation and opinion processes of their members. They have a grant for a software called Dexidin⁵, but due to a lack of time, it is nowadays on standby.

The local groups also hold meetings, some of them monthly, every two months or more, it depends on the local group. Sometimes an informal meeting has formal content and decisions are taken there.

⁵ Dexidin is a software that streamline participatory processes.

"Regarding our local group, it is easier to have some meetings, as the "headquarters" is here, let's say informal meetings ... the meetings are formal but with an informal convocation, (...) at the end of those meetings, we take agreements and we manage and do some tasks."

Interview Spain, Male Respondent, R3

But it is also recognised the relevance of some members in the decision-making process of the collective:

"When making decisions at the strategic level, 2-3 people have much more weight, due to their specific role in the cooperative. Technically, as I say, there are 2 other people who lead the electromechanical engineering part and the software part, they have some specific weight, too, and once these are recognised, those two or three areas, as there is a meeting, usually weekly, where issues are discussed, the day by day."

Interview Spain, Male Respondent, R3

3.2.1.6 Enabling factors for the foundation of the collective

One of the enabling factors described in the interviews is the cooperative tradition in Catalonia. There are good examples of successful cooperatives. Another enabling factor identified is the previous experience of the core members of the collective in participating in another energy-related collective. Although one of the interviewees said that he felt very alone in the process, others pointed out the importance of the lessons learned in the energy-related collective.

"I have the feeling that we were very lonely, and we continue to be very lonely. It is true that [the energy-related collective] has opened the path, has given us knowledge, has provided experience, but the feeling is that we have been very lonely. We had problems to set up the consumer cooperative, we still have problems to be comprehended (...). They see the mobility that we offer as a futuristic thing, super cool, perfect, but for the future; and then we are in the feeling that we are going alone ahead, also in the technological field, in the creation of open technological spaces, in the digital transformation of cooperatives, which is also an important transformation."

Interview Spain, Male Respondent, R2

Another factor is a well-organised civil society in Catalonia. The collective was born in a place, Can Fugarolas, that is a space of social activism. The respondents believe that if Can Fugarolas and its co-working space had not existed, the founders of the collective would have never met. The collective was born from social activism.

Can Fugaroles is intimately linked to the birth of the collective. The Can was born in 2014 and the collective was founded in 2017. Although for the foundation of both initiatives they did not get any public support and they were born from mere social activism, the collective received a yearly grant from the Generalitat and obtained other public funding resources from some municipalities such as Barcelona.

"Possibly, without this legal framework, without these grants, it would be more difficult, although not impossible, the continuity of the collective."

Interview Spain, Male Respondent, R3

It is important to mention the high level of investment through crowdfunding that the collective obtained from individual members and/or collectives, 169 people have committed 120,112 Euro which financed the purchase of one vehicle.

The collective is currently supporting the creation of a network of sustainable mobility collectives in Europe, they are linked with The Netherlands, Germany, Belgium. Also, they support the foundation of similar initiatives in other Spanish regions such as Valencia or Madrid. One person of the technical team dedicates around 75% of his time to support the establishment of new initiatives in Europe, networking, etc.

3.2.2 Main outcomes of the interviews

The following table offers an overview of the persons interviewed in the Spanish case study.

<i>Respondents</i>	<i>Age</i>	<i>Sex</i>	<i>Professional status</i>	<i>Place of living</i>	<i>Family status</i>	<i>Role in the collective</i>
R1	35-44	M	Entrepreneur	Mataró	Family with two children	President of the collective and member of the Governing Board
R2	45-54	M	Worker in the cooperative	Mataró	Divorced, three children	Member of the technical team and represents it on the Governing Board
R3	+55	M	Retiree	Mataró	Family with two children	Volunteer in the cooperative. Middle active, has a connector role

3.2.2.1 Main motivations and expectations of the members of the collective

The personal situation of the three interviewees is one of the first motivators to have joined or founded the collective. In the case of R1, he had an economic situation that allowed him to entrepreneur new projects, from the activism in the case of Can Fugaroles and as a job in the case of the collective. Also, he had formed a family and wanted to start a job from Monday to Friday because his previous job was very time and effort-demanding job.

Interviewee R2 wanted to combine a more gratifying professional career and to join a (social) movement. This happened in that precise moment.

"Surely, I needed at that time (in the past) to find a professional recognition, to be able to grow, to be able to find me in high decision spaces and when I arrived, I saw that it was not, that it was very boring, that something was missing and that it was not my space. And good, I reconnected at a professional level and more emotional level."

Interview Spain, Male Respondent, R2

In the case of R3, he had spare time and he decided to use this time in a sustainable project. The idea fitted him because on it converges his background in the telecommunications field and his personal concern about social issues, so he joined the local group. Also, he highlighted that when the collective was born, to have or use an electric car was considered something cool and fun, and these two aspects attracted him.

Another motivator for all interviewees is the personal commitment with sustainability (not only for climate change, as a personal option) and to make a positive impact on the world.

It is pointed out that all workers of the technical staff have made a decrease in their professional careers to be involved in this project because they believed in the project that combines the values of proximity, of having a positive impact in the society and of a slow life.

As for the expectations of the respondents, most of the expectations have been met. All the interviewees consider it beneficial being part of the collective because they obtain sustainable shared mobility and generate a positive impact in their own city and territory. Yet, some frustration is perceived in all interviewees as they expected a faster development of the project. They did some optimistic projections and afterwards they realised that it is impossible. Now, they have more realistic expectations that can be met. In any case, they are very proud of having started with three cars and having 25 cars two and a half years later.

"The expectation of being part of a group, well, an original one at that time, and interesting, has been fulfilled."

Interview Spain, Male Respondent, R3

Interviewee R2 believes that they are still in an evolution process and the process has to be fair for all:

"A cooperative has to generate spaces, decent work: worthy salaries, salaries on a balanced salary scale, but also means that the salaries of the profiles with a little more operational support are enough, that they can live quietly alone in a society that is very expensive. It seems good to me that this is what we are building, and we are evolving well to arrive in a couple of years at an optimum, maybe in 3 years, to feel very comfortable, professionally."

Interview Spain, Male Respondent, R2

Sometimes they have received some criticism from someone due to their salary, involvement with the collective, etc. They resolve this problem with an excel sheet, using an idea of other Belgian collectives that were part of their network. In this sheet, they count all the hours spent voluntarily during the first two years, and now, so they can show their "voluntary involvement" with the project. It is a good tool to defend themselves from any criticism.

R2 expresses that they are happy with the work team and has showed some doubts about whether the team is going to maintain this level of implication and good collaboration when it grows.

The respondents are also happy with the good connections with the local groups. They pointed out the low level of friction they are having inside the collective when in other similar cooperatives there is a certain level of criticisms from some members.

"These projects are hard, because you invest a lot (time, money...) and sometimes someone criticizes certain things, I've seen this in [the energy-related collective] and it has hurt me a lot, as a member. (...) I empathize a lot with the one who leads, and I get angry with the one who is in the criticism position"

Interview Spain, Male Respondent, R1

One of the personal benefits from being part of the collective is a personal reward: to enjoy another way of life, a new lifestyle regarding mobility, and saving some money.

"We spent 100 Euro a month on diesel, so this had to have an impact (on my conscience and my economy) because in electricity I spent much less, I spent around thirty Euro. (...) The project has allowed us to move without that diesel vehicle, now we have two electric bicycles and we even go to nearby towns by electric bicycle, all four, and when we need a car we take it from the carsharing, but we use more the train or the bus. There has been a real decrease in our case and I enjoy it".

Interview Spain, Male Respondent, R1

3.2.2.2 Influence of the collective in individual energy behaviour and lifestyle

The interviewees have a solid background in different types of activism such as energy issues, climate change, sustainability, social rights, or participation in neighbourhood associations.

"I had already a sustainable restaurant, I was already in [the energy-related collective], I was an activist and an ecologist for years. Belonging to the collective has endowed me with new knowledge of mobility issues. I am learning things and nowadays I have a more social vision of mobility, that's what I'm learning. And yes, I am more convinced of the need to live from the common good".

Interview Spain, Male Respondent, R1

It may be considered that due to their previous activism background of the respondents, their lifestyle has not changed, which is not the case. Indeed, if we focus only on mobility issues, their lifestyles has changed

substantially: in two of the cases, they sold their combustion cars and currently do not have any car, they only use the cooperative's cars.

"I sold the car, we do not have a car at home, we take the shared cars and I move less by car, also with that conscience. Yes, in the process of becoming more aware, I think that belonging to the collective has helped me and we are in this way."

Interview Spain, Male Respondent, R1

R2 shares a combustion car besides using those of the cooperative. But he has no longer a car in property, he shares it with two other relatives. But in the case that the collective would not exist he assures that he would do his mobility by a combustion car.

"If not, I would already have a combustion car because I would not spend 28,000 Euro on a car. I would have a combustion car, I would park in the street, therefore, the model has changed me."

Interview Spain, Male Respondent, R2

Furthermore, one of the interviewees has changed the electricity company to a more sustainable one and he and his family are more aware of their energy consumption.

Some of the new members of the collective have never been part of any cooperative before or do not have environmental awareness. Thus, for these people the involvement in the collective has triggered a change in their individual lifestyles; in some cases, they only modify their mobility habits by using the shared electric car but they do not go further on the "activism" issue and from an ideological point of view they stay out "of the movement".

Yet, in general terms, belonging to this collective make the members think about other types of sustainable consumption, in other domains such as electricity or communications, and find other companies/ collectives with very similar basic objectives, which also extends the knowledge and the interests in these other parallel fields. At the same time, it influences the personal environment, other clubs, other social movements and create opinion in there. The collective, being an environment where all is questioned and discussed, forces the members to be informed and updated.

Another factor that influences the change of their individual lifestyles according to R3 is the role of the leaders. The discussions inside the collective and the information exchange contribute to this change. It is important to highlight the huge influence of the information shared by the collective. It is expressed in many parts of the interviews.

The cultural change is mentioned in all the interviews, too. This is an important factor that makes people change their lifestyle. Once they realise the problems generated by a lack of sustainability, these people begin to question their attitudes and start the process towards a behavioural change.

"First, it is to become aware of this, and when you change all your habits, you are entering the possibility of sharing a car, of not planning some expenses, of avoiding some trips, walking more, but it is a long, long process, I'm doing it and I'm not at the end of it."

Interview Spain, Male Respondent, R2

3.2.2.3 Evolution of the collective as influenced by its members

The collective evolves by the influence of its members and all members are involved in this evolution at different levels, but the technical team and the Governing Board try to preserve the interests of all the members of the collective.

"[at the beginning of the cooperative] I think, I was able to give a vision from the point of view of the consumer member."

Interview Spain, Male Respondent, R3

The way in which daily issues are dealt with and problems are faced also facilitates the constant evolution of the collective. The information shared in the social networks and other events are channels for this evolution.

"If you are a sponge and are constantly interacting with people, they make you think things. And I have the personality to question things. So, getting involved in a mess like this, makes me evolve more because I am constantly questioning myself, and being with people who question things."

Interview Spain, Male Respondent, R1

This process of sharing information and the discussions build the whole narrative of the collective: what kind of mobility they want, resolving the individual needs while developing the project evaluating and their impacts at the community level.

The implication of the "core" members since the very beginning with their time, their effort, their personal contacts and the money invested in the project without knowing if they would be paid back is also essential in this evolution.

"[...] I put energy, free work...At first, we put work, money and everything... contacts. Yes, I think that contributed a lot."

Interview Spain, Male Respondent, R1

3.2.3 Insights for policy makers

The insights for policy makers are described based on the following questions:

- ***Why could the collective analysed in this case study be interesting for policy makers? How can the impact of the collective on individual energy-related behaviour be summarised?***

The selected case study represents an example of the importance of personal values and beliefs for triggering sustainable projects, in this case related to electric mobility. It also represents how the leadership and the boost of some pioneers can engage people to participate in a collective and initiate a transition towards a more sustainable mobility pattern.

It was the need to reinvent mobility in a time of energy transition and societal challenges which motivated the creation of the collective, along with the willingness to empower citizens and strong beliefs in the need of a more sustainable and fair future. Activists, ecologists and other social movements demand a change in the energy practices that would face a threatened "material culture", caused by the necessity of achieving the agreements on CO₂ emissions, facing climate change and a higher prices and lack of availability of one of its crucial resources.

The interviews show that there was an impact on the lifestyle of the respondents after joining the collective. Although there was a previous awareness and pro-environmental behaviour of the persons interviewed, the fact of joining the collective increased that awareness and led to a change in their daily behaviour in several aspects such as the change from combustion cars to electric cars, occasionally switching off the TV or other appliances, or buying fewer clothes. Moreover, the mobility through using carsharing implies a decrease in the use of individual journeys

because it is not cheap, and it also implies using more public transport (if available and of good quality) because making use of carsharing is more expensive.

In addition, the bottom-up character of the collective, in which the local groups and connectors have a key role, facilitates the engagement in the collective and the social interaction of its members, helping the exchange of ideas and the influence of the members in other members' behaviours. Policy makers should take into consideration the strength that exchange of information and awareness among these collectives have when triggering changes in lifestyle. It is important to facilitate that initiatives grow locally, with their own particularities but under a common structure, to avoid duplicity in services or expenses.

- ***What are possible policy measures to support this specific type of collective (materials aspect), based on the problems, barriers and opportunities identified by the collective members?***

As stated in the case study, these initiatives need public support in their launching phase. There is a need of financial and awareness incentives from the public administrations to this kind of collective and cooperative projects. The fact that some municipalities make use of this service is an indirect way to support the collective, both financially and as a role model to attract citizens to the initiative. Supporting the development of new plans for recharging points in cities, towns and villages is needed, stimulating that renewable energy is the energy provided in these points.

- ***What are possible policy measures related to awareness creation and values (norms aspect)?***

Public institutions can support these initiatives by empowering citizens and making them aware of the benefits of sharing electric cars, eliminating rumours or misinformation. The uncertainty associated with the frequently changing legal framework in Spain comes up again as a barrier for renewable energy. It is important that the commitment made by the Government with the electric mobility continue and that this mobility is also based on recharges with renewable energies.

Also, a previous pro-environmental education will facilitate the engagement of the members of the collective with energy transition. The case study shows the strong links between the mobility sphere both with the use of renewable energy and the willingness to have a prosumer role in other areas (telecommunications). This cross-fertilisation among collectives is to be considered as a way of promoting changes in citizens' behaviours or lifestyles.

Finally, one of the success factors of the collective is based on the leadership, conviction and energy of the promoters of the initiative. Public institutions could support these leaders in several ways, mainly trying to decrease bureaucratic barriers and promoting their activities and helping them in the engagement of new members (or in the creation of new local groups). These leaders are also "ambassadors" of their initiatives and act as mentors for other collectives that are emerging, transferring good practices and lessons learnt. A network of such mentors could be promoted by public institutions.

3.3 Bulgaria

3.3.1 Description of the collective

3.3.1.1 Background

The case is a typical example within the national context of Bulgaria, where after the adoption of the Condominium Ownership Management Act⁶ in 2009, collectives of homeowners had to be officially registered in a rather brief period of time because of external pressure – EU funding requirements under the Operational programmes and changing national legislation and regulations concerning the maintenance of collective housing with an explicit accent on improving their energy efficiency. The official registration of a homeowners' association was the preliminary condition in applying for and receiving the funding for the refurbishment of the multifamily residential buildings many of which needed upgrading. Convincing and motivating the homeowners to join in the associations was the hardest part, yet it was the key moment in the process and had a fundamental role in achieving practical results. The biggest challenge in the collaborative process was to involve the owners who were either little concerned with the management of the collective ownership or suspicious to the real motivation behind the initiative. Alongside, some of the inhabitants in the multifamily residential buildings had long-established informal collectives united by a common understanding and following informally adopted rules on maintaining the common parts of the buildings. By keeping with these internal rules and existing relationships, trusted informal leaders were able to more easily persuade their neighbours on joining a formal team for the purposes of a much needed general renovation, thus benefitting from the opportunity provided by the national authorities.

In the period between mid-1950s and late 1980s, in line with a strategy for fast industrialization of the country, the Bulgarian State followed an extensive housing policy. Being the major owner of all major resources in the country, including land, the State undertook large-scale construction of multifamily housing structures in the growing Bulgarian cities and towns. There were various distribution mechanisms through which the dwellings were first rented and then, since early 1970s, gradually sold to the inhabitants (so that the State can escape from the burden of needed maintenance costs). After the political changes in 1990 the State completely withdrew from the housing sector and the demand for residential buildings was met by numerous emerging private companies, which were building and selling most of the apartments. As of 31.12.2017, private dwellings constituted 97.6% of the dwellings in Bulgaria and 94.2% of the dwellings in Sofia Municipality (NSI, 2019). The dwellings market in Sofia is the most dynamic one in the country due to the attractiveness of the capital city and the considerable incoming migration flows from all over the country.

The case study addresses three semi-detached 8-storey prefabricated panel blocks of flats, each block with two separate entrances, in the southwestern part of the city of Sofia. The blocks were built in 1967-69. The overall 112 privately owned apartments (with 1-3 rooms) in 2011 sheltered 235 inhabitants (101 males and 134 females; 30 over the age of 55 and 79 over 65; 120 with higher education and 70 with secondary education; 9 foreigners). Most of the dwellings (110) were equipped with district heating installations, 1 dwelling was with own source heating installation and 1 dwelling was without heating installation; 14 dwellings were uninhabited.

According to the Certificate for energy performance of buildings in exploitation, issued in 2016 and valid until 2020, the gross floor area of the three sections was 1,0422 m² and the heated area – 1,0038 m². The annual consumption of usable energy covered heating – 63.4%, hot water – 26.58%, lighting – 1.63%, other – 8.39%. The primary energy consumption of the building before the rehabilitation was 309 kWh/m² and after the rehabilitation – 194 kWh/m²; thus, the building was upgraded from energy performance class E to C.

⁶ <https://www.mrrb.bg/en/law-on-the-condominium-ownership-management/>

3.3.1.2 Motivation and objectives of the collective

After a period of property mismanagement with a lot of negative consequences in late 1990s and early 2000s, the collectives in the six entrances finally decided on jointly facing the emerging problems by gathering regular financial contributions from the households for urgent repairs of the common parts in the buildings, partial insulation of neighbouring apartments or the introduction of some energy efficiency measures internally and externally. The three blocks rely on a distance heating system with three substations and separate heating installations, each serving two entrances. Thus, the existing heating technology in the sections required the cooperation between the units in communicating with the heat provider and clarifying the rights and obligations of the homeowners regarding the hot water utility.

A group of homeowners initiated the registration of a homeowners' association in 2014; it turned out to be a long process that lasted more than two years. The officially registered association brought together the inhabitants of all the sections (with more than 77% of the common ownership represented) in a body, which was legitimate to apply for EU and national funding, including 100% grants, for the implementation of energy efficiency measures and general refurbishment of the building. The application was submitted in May 2015 and the contract with the municipality was signed in June 2015. The initial core group of three people, sometimes growing to more than 10 proactive members of the association, volunteered and led the process from the preparation of the grant application to the implementation of the interventions.

The homeowners' association aimed at general improvement of the energy performance and the overall appearance of the buildings; diminishing the common energy-related costs (incl. electricity and heating losses in the common parts of the building); the provision of external funding for the refurbishment of the building and for implementing energy efficiency measures.

The homeowners' association was created only with the purpose of renovating the building by taking advantage of the opportunities provided by the Energy Efficiency of Multi-Family Residential Buildings National Program. Given the requirements and rules of the program, the association had to include all the six entrances of the two sections of the block. As the program provided 100% grants, no financial contribution was expected from the owners of the apartments, respectively the members of the association. The people elected to represent the association, as well as those who were involved with providing technical advice and assistance, voluntarily invested their personal time and efforts into the association undertakings.

The established association bringing together the homeowners in the three sections (each with two entrances) of the residential building, was the formalized expression of the owners' collective will for overall renovation of the building. Yet, the inhabitants of each unit (entrance) continued organising their own maintenance activities independently from one another.

Prior to the adoption of the Condominium Ownership Act, the management of the separate sections (entrances) had been of informal character; no official registration of the management bodies was requested by the local or central government. Nonetheless, from the very beginning (when the building was put into operation), the owners had worked as a team with its governing body - the General Assembly; a house manager and a treasurer had been elected to undertake, on a voluntary basis and free of charge, all the actions decided upon by the General Assembly. Due to that, long-lasting contacts and relations among the owners had been established. The Condominium Ownership Management Act acknowledged in 2009 that practice of informal governance, yet it also envisaged an option for formalizing owners' relations by registering a homeowners' association.

In the particular case, the establishment of a formal homeowners' association was comparatively easy due to the long-existing contacts between the inhabitants and the trust to the people who had been acting for many years as leaders of the informal collectives and as initiators of various activities aimed at the maintenance and improvement of the building and the its environment.

3.3.1.3 Energy-related technologies used by the collective

The collective's core activities addressed thermal insulation, including the common parts of the building; replacement of the joinery and the lighting system; other prospective energy efficiency measures related to the internal central heating installations.

A structural and energy audit was carried out after the approval of the funding application and measures were prescribed in the issued technical passport of the building. An integral renovation of the building was undertaken, including structural strengthening, major repair of the foundations and the cellars, hydro insulation of the roof, energy efficiency measures in the individual apartments and in the common parts, improvement of the central heating system with overall changes of the vertical infrastructure.

3.3.1.4 Engagement of the members in the activities of the collective and social interaction within the collective

All the members were involved in the decision-making process based on the rights and obligations for participating in the General Assembly, held minimum once a year. The core group of three people, the Managing Board members, in times supported by more than ten proactive members of the association, volunteered and led the process in operational terms during the preparation of the application and the implementation of the interventions. The homeowners' association was at the time of the interviews planning to fund themselves an additional energy audit in order to estimate the real-life energy savings after the interventions.

According to the way of their social interaction the members of the team can be divided into five groups:

Group 1 (G1): Active and responsible. These are the people elected by the constituent General Assembly of the association to represent the collective. Here can be found the main initiator, a chemical engineer over 70 years of age (R2), who went a long way long way to persuade all those who were non committal and / or had reservations. Having convinced herself of the opportunities provided by the National Program, she initiated communication and negotiated with the inhabitants so as to register an association under the rules of the Condominium Ownership Management Act. Thanks to her efforts, after gathering 67% of the homeowners supportive to the idea, the association was established. At the constituent General Assembly, a Managing Board was elected; including the initiating lady, although another person, an engineer, was the elected as Head of the Association. This role involved all the formal responsibility as well as representing the collective when dealing with third persons and institutions. During the renovation activities, the head of the association organised all the logistic activities, the access to the dwellings and the communication within the collective, together with the Control Board members.

Alongside, all emerging opinions, dissatisfactions, recommendations to the Managing Board were passed to the lady who continued to perform organisational and mediatory tasks in addition to the duties she had taken from the beginning of the process. Based on her professional expertise, she also carried out the communication with the technical contractors and quality control on the building materials.

Group 2 (G2): Active, convinced and supportive to the idea, yet without taking explicit responsibilities. These were people convinced of the benefits of an integral renovation. Some of them had attempted to initiate similar activities within their own section as well but have for some reason given up. These were highly educated people with expertise in the intervention areas, often with management skills. They supported the team with their expertise, participated in meetings requiring technical expertise, maintained some of the technical systems in the building. In addition, they carried out expert control during the renovation implementation.

Group 3 (G3): Passive but supportive of the collective action by expressing consent for joining, but not contributing more than that. It is the largest group in the collective.

Group 4 (G4): People with initial doubts about the successful outcome of the venture, but subsequently convinced to join the collective. Some of them participated actively in the process through informal control on the implementation activities.

Group 5 (G5): People who had continuing doubts about the main goal of the collective and hindered its formal establishment as well as the action undertaken afterwards.

3.3.1.5 Values and culture of the collective

Each of the informal collectives had its values and rules to uphold them. Yet, each collective also encountered internal challenges in the internal communication among its own members and in agreeing on various management issues concerning the common ownership. The larger number of members led to greater communication difficulties and barriers within a collective. The change of homeowners due to inheritance, purchase or renting was also a challenge.

Home is traditionally appreciated as a major value by most Bulgarian families. In parallel, there are significant differences in people's understanding about their right to use the common parts of the buildings and the surrounding area and their obligations to maintain them. The prerequisites for these differences in attitude to co-ownership could be found in the social characteristics, economic opportunities and cultural perspectives of each of the occupants and members of the collective. The large variety of the inhabitants in a multi-family residential building (origin, age, education, income, culture, etc.) is usual under the current Bulgarian context. Yet, since 1990s, these differences had been complemented by deepening economic inequalities within a multifamily building section; there are currently many households in Bulgarian cities with practically no capacity for undertaking home repairs.

Some of the interviewed inhabitants had been living in the buildings since they were built; they described themselves as very caring and committed to the maintenance. Some others, felt connected with the place even more strongly, being residents or descendants of the inhabitants of the houses existing at the same place before the blocks of flats were built (R2).

"I know almost the entire block. [...] At the six entrances, I know almost 90% of people, because here was my husband's house before the block was built ."

Interview Bulgaria, Female, R2

Yet, a third group, although being owners for a long time, did not find it necessary to be active or only made the minimum efforts for covering the most urgent needs. Some of the inhabitants who are passive or refusing to participate in collective action are among the later settlers in the block. There are also elderly people who do not want or cannot afford to participate more actively, especially when it comes to bigger amounts of money to be invested. There are also some homeowners who live abroad, and their flats stay uninhabited for a long time.

The unwillingness or inability of some inhabitants to accept new forms of behaviour or gain new skills was among the factors highlighted as a barrier to the understanding for the importance of caring for the common parts of the building. Such people usually reject any new idea about the common parts of the building that would require all the homeowners' consent and contribution.

"[...] Some of them are afraid. They may not understand what you are explaining to them, or some of them are functionally illiterate because they read the text but do not understand what is behind it. They cannot grasp the meaning."

Interview Bulgaria, Male, R3

Overcoming distrust to the processes launched by the State and requiring the establishment of a collective and general agreement, was considered a great challenge. The announced renovation of the multi-family residential

buildings for free also triggered considerable distrust. In many cases, it was considered a potential source of subsequent problems associated with poorly organised and implemented measures.

“From the beginning, the opponents were many, well over 50% and me, too. Yes. I was also an opponent, although I was one of those who were trying to improve the installation. I was initially against, because I've lived long enough to have an idea of how public affairs are happening, especially free ones.[...] I have experience from public affairs, and I do not believe it and it turned out that way, unfortunately. I always say I hate to be right, but things happen in our country this way.”

Interview Bulgaria, Male, R4

Many homeowners feared losing their homes as a result of the renovation initiative of the State. The fears were also deepened by the expectation for possible hidden payment obligations, which - if not covered, could be the reason for losing the property. Moreover, one of the political parties in opposition fuelled these fears, building on their own campaign against the concept of the National Program.

The accumulation of ambiguity, distrust and fear resulted in many homeowners opposing the initiative; the formation of collectives often became a 'mission impossible'. Overcoming the barriers and forming a collective, which would unite the homeowners around shared values and a common mission, was a long process accompanied by a lot of effort, occupational and personal skills and considerable personal time invested by a small number of highly motivated people. The key person in that particular case was a retired lady – a person of a strong spirit and determination. The shared value that motivated the formation of the collective was the renovation of the residential building, aimed at increasing its energy efficiency and reducing the consumption of energy. The steps planned for achieving it included the issuing of a technical passport, structural strengthening of the building, renovation of the dwellings and the common parts, implementation of energy efficiency measures.

The process of building the collective, the interaction and the achieved relationships were estimated as the intrinsic values for the collective. Peoples' trust was justified by the people who undertook action on behalf of the collective; the concept behind the formation of the team was successfully implemented; most of the collective members were very satisfied with the physical renovation of the building; yet the estimated greatest value was the self-confidence attained by all the people concerning their capacity for undertaking effective collective action.

Overcoming the renovation challenges gave birth to the confidence that the collective will be able in future to do everything together in the name of causes that bring benefits to all members. From neighbours with a different profiles and opinions, they became a community.

3.3.1.6 Enabling factors for the foundation of the collective

The Association was established as a legal entity under the provisions of the Condominium Ownership Management Act, which also provided the legal framework for its effective structure and functioning by specifying that an association should be established by a constituent meeting of the property owners within the building. The Act specified the main ruling bodies of the association – the General Assembly of all its members (held at least once per year); according to the Act, the Managing Board and the Control Board; the Managing Board was to formally represent the association in all its relations with the local government and other legal entities.

The interest of the main actor of the collective in the topic of building renovation was provoked by the enhanced communication campaign led by the central government to disseminate the opportunities provided by the National EE Program for multifamily residential buildings. The seminars, lectures and information campaigns organised by the representatives of the regional and municipal administration helped in clarifying all the details of the renovation process. This was a key prerequisite for the formation of the collective as it provided for the key actor's self-confidence when claiming the rationale of the idea in front of the homeowners (and potential

future members of the collective). The employees in the legal department of the district administration provided substantial assistance in the establishment of the association.

3.3.2 Main outcomes of the interviews

The following table offers an overview of the persons interviewed in the Bulgarian case study.

Respondents	Age	Sex	Professional status	Place of living	Family status	Role in the collective
R1	65	M	Electronics engineer	Flat	Married	Manager (G1), proactive
R2	75	F	Chemical engineer	Flat	Married	Proactive (G1)
R3	52	M	Power engineer	Flat	Married with a child under the age of 18	Active and supportive (G2), follows the leaders
R4	80	M	Mechanical engineer and university lecturer	Flat, last floor	Married	Suspicious and partially active (G4)

3.3.2.1 Main motivations and expectations of the members of the collective

The main motivations of the interviewees cover a wide range of reasons but they all have in common the willingness of improving the structure and comfort of the building. Some energy efficiency measures had already been implemented in the family apartment even before the beginning of the collective initiative. According to one of the interviewees (R2) the idea about the structural and aesthetical improvement of the building was the main motivation for her proactive position in the process.

She had no preliminary idea about the initiated process and its possible results, yet that strongly motivated her to investigate emerging opportunities and barriers. She estimated the process undertaken as more difficult than expected; yet, she expressed during the interview her confidence in the objective, the results and the overall effect of the interventions in the building.

"This block is 50 years old. It can fall down. I started because I wanted the block to become normal [...] It was difficult, yet finally, after listening to us at the meetings, those who agreed on joining made 95% and so we joined. This way we took the last train...and now the woman, who initially did not want to join, said, 'God, how beautiful it is'."

Interview Bulgaria, Female R2

Another interviewee expected that the renovation of the building will lead to its structural strengthening and prolonging its life and to improve the conditions in the common parts:

He mentioned the feeling of being useful as one of the main motivations alongside the aesthetic and educational motivation example for one's child:

"A person who has not made any effort to learn anything and make any effort for himself can hardly convince him of anything. [...] To have something, in the end, a society stands for solidarity between members and solidarity of members. We seem to miss it. There are three people with whom we wind up and do something. [...] If we really want to do something we have to look like people and use our skills that we have [...] Yes, at one point, even when you do things for yourself, but so in a meaningful long-term benefit, you are also benefiting others [...] We are more competent in one area, that is of common benefit to all or to most people."

Interview Bulgaria, Male, R3

In addition, he considered that by taking care of the entire building one also protects one's own home.

"As you take care of yourself, you are also taking care of the person next to you because it will also keep your home."

Interview Bulgaria, Male, R3

The main motivation of another owner for joining the collective was the invitation to head the association, which flattered him. Before that, he had actively been involved in the activities of his own section of the building. He expected the process of doing things to be easier and with more people contributing in it.

"Here, I first had a desire [to do something] here, where I live; for our entrance, because I was responsible for the 16 apartments, half of which are of lonely retirees. [...] I had the desire to have a nice place to live, for us, for our children and for the others, but I was not the initiator, because the others came to me [...] Indeed, they invited me."

Interview Bulgaria, Male, R1

Finally, the main motivation for R4 was the appreciation of a great benefit in providing comfort to his family (the apartment is on the top floor and the rumble of rainwater on the roof was disturbing them). He also stressed the opportunity of himself closely controlling the refurbishment process. Previously, he had been active in the maintenance of the central heating sub-station. He was also invited by his neighbours to get involved in guaranteeing the quality of the intervention. He expected technical problems during the refurbishment, because of poor quality materials. He feared that the construction and installation works would not be carried out in a satisfactory way.

"But this lady was very active. It started individually, engaging some enthusiasts who were very eager to solve their problems, and on the one hand [I meant] not to contradict the neighbours, not to stop the good work. I personally benefit from this issue because I'm under the roof and the roof has to be repaired already and as the roof was discussed, that was the reason to agree. I agreed. The project started. I took part to some extent. I was not in the management of the association, but there, at the request of the neighbours, I got interested and involved in a lot of conversations with the contractor and the mayor, and I am aware of the project itself and the implementation. I entered in close relations with the executive director who was in charge of the rehabilitation. We fought, but the company was defending their interest."

Interview Bulgaria, Male, R4

All the interviewed participants in the refurbishment considered their participation in the collective satisfactory and mentioned several material and non-material benefits. The satisfaction with the collective action achieved was mentioned by almost all the interviewees, as well as the satisfaction of contributing with their own professional expertise to the common goal of the collective. They also considered as satisfactory the relationships built with their neighbours and the feeling of belonging to a community.

"To tell you the other way around. Yesterday, I went outside, and a child came over there, to buy something to drink. It was full of people here. And it looks at me and says, 'Where do you live?' I said, 'Here, in this block'. 'Yeah, in the beautiful block' he/she said. [...] In the beautiful block. So, our block is made with high quality materials. [...] Do you know? My acquaintance sent a photo of the block to Canada to people who have an apartment here but live in Canada. They phoned to ask me what we had done. I do not know how Canada looks like, I have not been there. Surely there are single-family houses, but to call and say that the block is perfect! [...] It has the comfort because there is warmth in here."

Interview Bulgaria, Male, R1

"I would say that 80% of the people are happy, even people who come to visit their relatives. There are owners who did not attend because they are abroad and have tenants. They just said that the image is quite different. [...] The first thing is that our family and our relatives, we are looking at the block from outside, it is quite different. We are glad. I never say I did that, the whole collective did it. Secondly, I have expressed gratitude from many people from the [...]. So, it was worth the fatigue."

Interview Bulgaria, Male, R2

"I just feel happier that a little bit of the construction will be maintained and life extended.[...] Not 100%, but there is some satisfaction."

Interview Bulgaria, Male, R3

"The roof was insulated, [...] I cannot say that we have felt the thermal effect in the winter, [...] but in the summer we felt it. We have air conditioning, but we did not switch on the air conditioning last summer."

Interview Bulgaria, Male, R4

Regarding the material dimension, the reduction of the energy bills, the increase of property value and the life-extension of the building are considered as the main benefits.

Interviews Bulgaria, Respondents	Immaterial benefits	Material dimensions
R1	Satisfaction with the collective action achieved; acquaintance and building relationships with the neighbours, satisfaction with own involvement. Satisfaction that through his own professional expertise he was able to contribute to the common benefit.	Reduced energy bills, increased value of the property, extended life of the building, repaired roof.
R2	Satisfaction with the achieved collective action. Aesthetic satisfaction. Satisfaction that through her own professional expertise she could contribute to the common good. Finding and creating adherents, a feeling of belonging to a community that has the power of changing things.	Increased property value, extended life of the building structure, renovated roof and basements. No further need for heating in winter.
R3	Satisfaction with the collective action. Aesthetic satisfaction. Satisfaction that through his own professional expertise he could contribute to the common benefit.	Reduced energy bills, increased property value, extended life of the building, refurbished roof.
R4	Satisfaction that through his professional expertise he could contribute to the common benefit. Satisfied, yet sad about the fact that he proved to be right regarding the imperfections during the implementation of the refurbishment measures.	Reduced energy bills, extended life of the building structure, refurbished roof, no need for further use of the air conditioning in both winter and summer.

3.3.2.2 Influence of the collective in individual energy behaviour and lifestyle

Almost all interviewees experienced a sense of fatigue from their volunteering for the collective initiative. They expressed the feeling that they had been taken for granted, and the other members of the collective had not

appreciated their, sometimes daily, effort and contribution to the common well-being. Only R2 who initiated the process, still appeared enthusiastic and ready for further action for the benefit of the collective.

Regarding the influence of the collective on the energy behaviour and lifestyle of the participants in the case study, three of the participants mentioned that they had not been influenced by the collective project. One of them (Interview Bulgaria, Male respondent, R3) mentioned that, rather, he had influenced other members of the collective. Another respondent stated that despite providing advice and assessment to everyone in the building, he was not inclined to re-consider the energy behaviour in his own home (R4).

"No [...]. It's hard for us to say because we have a one-pipe system and we have no heat meters to report."
Interview Bulgaria, Male, R2

"No, [my energy behaviour and lifestyle] have not changed much, because I am basically engaged in energy and ... it's not new. Even when my daughter was a third or fourth grader, the teacher collected the parents who wanted to deliver an open lesson, a kind of lecture for the children and I went to talk to them about energy, about energy efficiency."
Interview Bulgaria, Male, R3

"Now there is a conviction that I am the one who has to do the job, and because I can do it, I have to finish it. Yet, one invests physical effort as well as time.. Little by little, and desire decreases, but new enthusiasts are not seen on the horizon. There were people from our old generation who behaved responsively all the time. Now they are less and less."
Interview Bulgaria, Male, R4

Another member of the collective mentioned that he introduces measures for reducing the energy consumption of the household by choosing higher energy class appliances, energy-saving light bulbs, and by using water and heat at home with care.

"...We calculated that when buying a dishwasher, we spend less water, which is also environmental protection. We bought one at the time of the project and now after two years of use, we see that less water is spent, i.e. we have made some savings and I share this experience with the neighbours now. The effect was on our family's growing awareness that this is, in general, important - electricity and water and everything."
Interview Bulgaria, Male, R1

3.3.2.3 Evolution of the collective as influenced by its members

Each group of the collective members described in the case study had a strong influence on the collective. The most tangible one was that of the initiator, who acted as the main engine in building up the collective. Her confidence in the overall benefit from the work started, her ability for communicating with people and distributing the tasks in the process to reaching the collective's final goal, and the consistency of her behaviour throughout the process, made it possible to build up the collective and to reach the objective set. Moreover, being the recognisable leader and providing the role model in previous years, R2 could rely on the already established relationships and trust, which she had built far before the requirement for registering the collective was posed. As highlighted by all the other respondents, the example of her incredible energy, invested in the collective cause, was particularly contagious.

"There were a couple of people here who were kind of a motor, in the sense of understanding the rehabilitation program, and if it was not for that woman, I do not know how we would have ended up."
Interview Bulgaria, Male, R1

"My enthusiasm had faded, but this woman had gone around all the entrances, had contacted the section managers, and had managed to gather a huge percentage of the signatures in support of registering the"

association. Having a person so keen to devote her own time to persuade people, we started ... We were just lucky that this woman got hold of it and built everything. seeing that active elderly woman, people say thinks: Wait a moment, this woman runs swirling, let us do something if we can."

Interview Bulgaria, Male, R3

"It turned out that there was a very enthusiastic lady, driven by personal ambition, to include the block in this initiative. [...] This lady who started the organisation, gave all her soul and energy."

Interview Bulgaria, Male respondent, R4

The active members of the collective, who shared their expertise, were among the most significant contributors in the process. They helped in improving the quality of the construction activities; their participation brought confidence to all the collective members that technical issues in the project are handled professionally and responsibly. The example these people provided regarding the renovation and the energy efficiency measures implemented but also their daily energy- and resource-saving practices, deeply influenced the collective as a whole.

The formal leader of the collective, who stood with his authority of a reliable person and expert, and thus brought a sense of security during the project realization, also contributed to the development of the collective.

The bringing together of those who had initially opposed the idea and the common goal most strongly, was an important sign to everybody that it was worth investing time and effort in the pursuit of a common benefit, it reassured confidence in a very difficult moment for the collective and the process.

3.3.3 Insights for policy makers

The insights for policy makers are described based on the following questions:

- ***Why could the collective analysed in this case study be interesting for policy makers? How can the impact of the collective on individual energy-related behaviour be summarised?***

The case study is an example of successfully addressing a major recent challenge in countries like Bulgaria - building collectives of homeowners in multifamily residential houses of multiple ownership who would be able to undertake joint action for the refurbishment of residential buildings with numerous apartments and large number of owners in order to increase their energy efficiency.

The case provides an insight on how the initially existing individual distrust to any public action initiated by the State, rooted in people's memories of a previous societal system, has been gradually overcome through the devoted persistent individual and collective action of homeowners with specialized knowledge in the technical and energy field. Yet, the interest of a homeowner, an engineer, for applying in the national programme was provoked by an on-going public communication campaign.

The success of the undertaken collective action of the homeowners' association for joining the national programme for housing renovation and implementing the EE measures brought visible changes in the physical structures of the buildings and practical benefits for all the homeowners; it also brought shared feeling of encouragement and self-confidence, and contributed to building a strong sense of community. That later was an important factor in influencing energy-related behaviour and lifestyle of the households by enhancing individuals' awareness about practically possible action in the energy field and their interest in its potential benefits.

- ***What are possible policy measures to support this specific type of collective (material aspects), based on the problems, barriers and opportunities identified by the collective members?***

Policy measures in support of homeowners' collective action towards increasing the energy efficiency of multifamily residential buildings with multiple owners need to address several aspects of the process:

It would be of key importance to develop context-sensitive supportive mechanisms for collective action with an explicit accent on clear and accessible rules for their implementation. A core element in structuring policy measures would be the generation of knowledge about the collective members' readiness and capacity for participation in the processes and the provision of stimuli. A major effect mentioned by some of the leading participants in the initiative, was their fatigue in the longer term as their action was both time and energy consuming. It would be therefore important to provide the material conditions for supporting and better utilizing the existing local expert knowledge and the enthusiasm of local individuals who are competent to estimate the importance of the effort requested for the energy transition and motivated to actively participate in it.

Policy makers need to respond to people's expectations, also confirmed by all the Bulgarian respondents approached within the ECHOES project, for a strong normative and financial support for the successful implementation of the projects aimed at the renovation and increasing the energy efficiency of multifamily residential buildings.

Methodological support has proved to be crucial in the process of EE-aimed housing renovation that requires both complex technical, economic and social knowledge. It would be very important to provide the opportunity for regular contacts of homeowners with relevant experts (technical, communications, etc.) at easily accessible and recognizable places in the settlements. The proper functioning of all the technical installations in the long-term should be guaranteed.

A potential increase of spatial and regional disparities resulting from competition-based procedures applied in the housing renovation programmes should be carefully considered.

- ***What are possible policy measures related to awareness creation and values (norms aspect)?***

The physical results of the undertaken interventions need to be promoted as broadly as possible while demonstrating the mid- and long-term effects of the implemented measures. It would be helpful to visualize the complex effects of the interventions in different urban and rural localities. The currently implemented IT systems provide a lot of opportunities for visualizing the real-time energy consumption, CO₂ emissions and the financial gains for the households or blocks of flats by comparing the values before and after the implementation of the measures. Sharing such information, especially demonstrating the greater effectiveness of the integral renovation of a multifamily building, could be expected to increase the motivation for initiating collective action towards a common goal.

Outlining the contribution of certain actors and collectives and acknowledging the role of the formal and informal leaders would contribute for increasing their satisfaction with well executed work but will also provide an opportunity for knowledge and experience exchange with next collectives starting on the same path. It could be expected that such action would encourage proactive as well as less active participants in energy transition processes.

The building of informal networks based on the voluntary activity of the leaders and other proactive members of the collectives would be of key importance for the transfer of knowledge and skills but also for changing the attitude to collective action in general.

3.4 Turkey

3.4.1 Description of the collective

3.4.1.1 Background

The Renewable Energy Cooperative was founded in 2016 through the collaborative initiative of ten voluntary founding partners. Later, the district municipality also became a partner. It was founded in a district with a population of 43,000 in the Aegean Region, where renewable energy resources such as solar, wind, and geothermal have great potential.

The major motivation to establish the cooperative was to encourage citizen participation and achieve self-sufficiency in energy generation. In other words, it aimed at the adoption the concept of prosumerism by the citizens. The collective organisation targets and attaches importance to mass consumption, rather than focusing on individual consumption. Fundamentally, the cooperative seeks to install energy generation power plants within the district. Additionally, it adopted the principle of extending cooperative spirit across the whole region by emphasizing the significant role of cooperatives in the energy sector.

In accordance with the current legislations in Turkey, at least seven members are necessary to establish a cooperative. With the participation of associate members, when the number of the founding members reached ten, the cooperative was officially founded. During the establishment phase, each member invested a specific representative amount (around 1,000 USD) as equity capital. At the time of the preparation of this case report, the cooperative has 30 members, and is in the process of establishing a pilot facility of 100-110 KW capacity, after failing to achieve the initial target of more than 1,000 members. In this sense, the cooperative is still trying to overcome the barriers in the establishment phase. On the communications front, the current activities of the cooperative include organising public meetings to raise the level of citizens' awareness for environmental issues, and receive better social support for the cooperative, and reaching out to potential partners who may become investors. Furthermore, the board of the cooperative made intensive efforts in communicating with representatives from the General Directorate of Cooperatives, Ministry of Energy, and municipalities to overcome the legislative and bureaucratic barriers. Additionally, it conducted field work in which the potential sites for establishing the facilities and the power plants are identified, negotiations with the land owners and state officials are carried out, and technical plans are developed. Finally, the cooperative participated in discussions with potential investors and potential sub-contractors regarding the terms and conditions.

3.4.1.2 Motivation and objectives of the collective

The Cooperative acts as a pioneer for popularizing the energy cooperatives and it has an aim to contribute to energy cooperatives, becoming a significant player in Turkey's energy sector.

The key objectives of the cooperative are as follows:

1. Ensuring citizen participation in the economy and enabling citizens to have a voice in energy-related issues.
2. Lowering energy prices by preventing monopolies in the energy sector.
3. Ensuring capital allocation.
4. Raising social awareness.
5. Meeting at least 10% of the district's energy demand from cooperatives.
6. Reducing Turkey's energy dependency.

3.4.1.3 Energy-related technologies used by the collective

The selection of the technology for the cooperative aimed at a more flexible use of renewable energy resources, which will be able to match capacity with the available investments at any particular time. As a result, solar energy was preferred among the energy-relevant technologies for this reason and, also the efficiency of solar energy systems in the target region.

3.4.1.4 Engagement of the members in the activities of the collective and social interaction within the collective

The historical evolution of the Renewable Energy Cooperative provides clear evidence of the principle of distribution of tasks. The partners have different professional backgrounds, which is reflected in their allotted tasks within the cooperative. This results in varying roles and responsibilities of members and an according division of responsibilities. One such area is keeping the cooperative members up to date about the changes in the legal procedures and legislations, while other partners have the role of dealing with technical issues such as the generation capacity and type of power plants to be installed. Others work on the financial aspects, investment requirements, and feasibility studies. This structure of specialization and different roles of partners also lead to interactions between them, which is regarded as one of the indispensable outcomes of cooperatives as collective formations. This interaction enables the members to obtain knowledge regarding different aspects, through information exchange and sharing. Other dimensions concerning interaction with external stakeholders can be observed in communications with public institutions (e.g. General Directorate of Cooperatives), and interactions with the local community, emphasizing the importance of information sharing. However, it is observed that all the partners have not yet fully internalized the cooperative's spirit, resulting in a lack of progress in the further development of the cooperative. This also shows that not all members are engaged at the same level of commitment in cooperative activities.

3.4.1.5 Values and culture of the collective

The culture and practices of the cooperative give insight into the operation of the decision-making mechanisms. The culture of the cooperative is influenced by the personalities and values of its partners, rather than a more formal set of statements and procedures. The aims of the cooperative include citizen participation, empowering citizen involvement and increasing awareness regarding environmental issues, highlighting that the partners share a similar set of values. While, the values of the cooperative include the right to include all its partners in the decision-making process, individual partners are assigned specific roles in line with their areas of expertise. Therefore, another value of the cooperative is respect for expertise. These values are reflected in the culture of the cooperative through open meeting sessions, where each member can present opinions to the benefit of the future of the cooperative. The areas of expertise are acknowledged, but the final authority is voluntarily given to the Board of Directors to approve the suggestions proposed by the members, and to transform them into actions. Empowering citizen involvement is another principal value of the cooperative. To reflect this value in the cooperative's culture, the Renewable Energy Cooperative adopted a bottom-up decision-making mechanism, encouraging all stakeholders to share their opinions. The opinions from the public regarding issues, such as alternative locations for the power plant, conditions for becoming a partner, or size of the power plant, are collected through communication channels such as public meetings, and these opinions are evaluated by the Board of Directors for feasibility and implementation.

3.4.1.6 Enabling factors for the foundation of the collective

The government provides incentives and support for the development of cooperatives in several areas. The Instrument for Pre-Accession Assistance Rural Development (IPARD) program provides valuable assistance for cooperatives. However, the city where the Renewable Energy Cooperative is established is not within the coverage area of the IPARD support, and therefore, the cooperatives in this city cannot benefit from this program. Moreover, multiple support programs from the European Union, the United Nations, the OECD, as well as the Arab Fund for Economic & Social Development exist. However, the Renewable Energy Cooperative has yet to meet the pre-requisites stipulated by these funding organisations, and it cannot receive any foreign financial aid, which obstructs the operation of the cooperative. A more detailed analysis reveals that insufficiency of funds, financial support or incentives are not the only barriers. Problems related to land acquisition constitute another significant obstacle. In this sense, finding a suitable area to install the power plants is quite a complex process as the potential technologically convenient areas are marked as either military zones, agricultural zones, or tourism areas.

Therefore, the motivation and pro-environmental attitude and belief of the founding members can be considered as the main enabling factor for the foundation of the collective.

3.4.2 Main outcomes of the interviews

Within the framework of the case study analysis, the interviews were conducted with three different representatives from the Renewable Energy Cooperative. These representatives have active roles in the establishment phase and decision-making process of the cooperative.

The following table offers an overview of the persons interviewed in the Turkish case study.

<i>Respondents</i>	<i>Age</i>	<i>Sex</i>	<i>Professional status</i>	<i>Place of living</i>	<i>Family status</i>	<i>Role in the collective</i>
R1	40	F	Director of Social Studies and Project	Town with more than 10,000 inhabitants	Married	Consultant
R2	62	M	Acting President of the Cooperative	Town with more than 10,000 inhabitants	Married	Founder of the cooperative and Board member
R3	52	M	Business Management Specialist	Town with more than 10,000 inhabitants	Married	Member of the cooperative

The first representative (R1) is the Director of Social Studies and Projects in the district municipality that is also a member to the cooperative. She was academically involved in its establishment process and supported the feasibility studies. With a background in environmental science and biology, she also contributed to ecological sustainability aspects, promoting renewable energy technologies. Her major contribution was the evaluation of feasibility studies during the establishment phase. She also personally carried out all ministerial and bureaucratic processes enabling coordination between the city and the government agencies. During the interview, she mentioned the legal and bureaucratic barriers to the establishment of a cooperative, discussing how far the cooperative idea had been achieved. Currently, however, she has no active role within the cooperative.

The second interview was conducted with Representative 2 (R2) who is the acting president of the Renewable Energy Cooperative. He is one of the founders and continues to have an active role in the decision-making process as a board member. The interviews reveal that the cooperative was founded through the voluntary efforts of the acting president and his peers. He provided his vast knowledge and experience in technical issues and legal aspects to the cooperative. R2 also highlighted key points during the interview, such as whether the initial expectations were satisfied or not and how the legal and technical problems affected the operation of the cooperative.

The third representative (R3) is the business management specialist of the Renewable Energy Cooperative. He became involved in the cooperative after closely following the developments in the solar energy sector. His decision was solely based on his personal interests. The interview implies that he is a strong supporter of renewable energy technologies because these technologies help to reduce energy dependency and ensure environmental sustainability. Furthermore, during his professional life, he participated in multiple seminars and conferences, gaining extensive knowledge regarding solar energy implementations. In this way, he made a great effort to provide his knowledge and experiences to ensure the rapid progress of the cooperative. During the interview, R3 shared

his concerns because of the barriers encountered during the establishment phase and his future expectations regarding the development of the cooperative.

3.4.2.1 Main motivations and expectations of the members of the collective

The idea for a Renewable Energy Cooperative emerged on the basis of meeting the domestic energy demand through a local initiative, aimed both at obtaining a profit and ensuring environmental sustainability. However, all respondents highlight that these initial targets determined prior to the establishment of the cooperative have not been achieved for of multiple reasons.

The decision to be engaged in the collective was originally based on members' personal interests and world-views. Moreover, their professional status and educational background also shape their attitude towards participation in the Renewable Energy Cooperative. The perspectives of the respondents reveal that individuals with a strong interest in the developments in the renewable energy sector were more enthusiastic about taking the initiative to establish an energy cooperative and investing in it.

"I'm an environmental scientist and biologist. I started to follow the cooperative process because I work in areas such as environmental planning and investment orientation. I also envisioned developing an academic process in this field."

Interview Turkey, Female, R1

"I have been dealing with solar energy implementations intensively for 10 years. I wanted to be an investor here, but my capital wasn't that great... My decision to be a member of this cooperative was purely based on my personal interests."

Interview Turkey, Male, R3

The respondents with an active role in the cooperative argue that the major motivation to join was to encourage the use of renewable energy technologies, in particular solar energy, aiming to reduce energy dependency and ensure environmental sustainability.

"Firstly, solar generation means Turkey's energy independence. Turkey's energy bill is 80 billion dollars annually. That's why I strongly support solar generation. The second most important aspect is environmentalism."

Interview Turkey, Male, R3

"Basically, we aim to utilize renewable energy without polluting the environment and nature."

Interview Turkey, Male, R2

Besides its environmental contribution and economic benefits on the national scale, the Renewable Energy Cooperative is also expected to provide members with economic gains benefits. Although the members do not expect significant revenues from the cooperative's activities, they expect to generate their own energy on a local basis and to reduce their electricity bills.

"It was a small project, but we believe that it was really an inspiring initiative. When we realised that the project returned a profit, it was decided to turn this to a business on a participatory basis."

Interview Turkey, Female, R1

Despite the high motivation and enthusiasm during the establishment phase, the members' expectations were not met, and they encountered several disappointments. Firstly, lack of awareness and interest by the local citizens in supporting the cooperative was a major barrier to progress.

"Local people did not show the same interest, so we could not achieve what we expected in the locality. That was the problem, so we couldn't grow."

Interview Turkey, Female, R1

"The cooperative spirit could not be adopted, in fact, this was the biggest loss for us."

Interview Turkey, Male, R3

Secondly, problems regarding land acquisition created challenges. No suitable area to install the solar units could be found. This situation was mainly caused by the political tension between the ruling national party and the municipality under the control of the opposition. Consequently, the cooperative's plan for power plants had to be downsized to a pilot facility.

"At the very beginning of the project, we planned a 5 MW power plant that would be quite sufficient for all the residents of our district, and we aimed to increase the number of members to five thousand. However, the things didn't go as planned. We requested land allocation from Directorate General of National Property, but it did not work because of various issues in our municipality."

Interview Turkey, Female, R1

"In fact, there were a lot of public properties belonging to the municipality, but we realized that some was agricultural lands, and some had been confiscated and therefore were not usable. The government also tried to obstruct land acquisition, to make life difficult for the municipality under the control of the opposition party."

Interview Turkey, Male, R3

"As the municipality is a political institution, it might create some barriers for the operation of the cooperative in terms of bureaucratic issues."

Interview Turkey, Female, R1

"Whenever we found a site to install the solar power plant, we then learned that the related area was either a military zone or protected area. Therefore, the cooperative decided to reduce the size of the power plant. As a result, they agreed on establishing a pilot facility of 100 KW. We had to downsize it to a 100 KW facility."

Interview Turkey, Female, R1

Another issue causing difficulty for the cooperative members were the laws and regulations in Turkey. The fact that the cooperative was not entitled to tax exemptions posed serious barriers for the operation. The acting president of the cooperative and the director of social studies and projects shared their opinions on this issue and highlighted that even though the cooperative aimed to provide social and economic benefits, it could not receive the necessary support from government agencies.

"My expectations were definitely not satisfied... we thought that we would do something of benefit for the community, not for individuals. This was also the mayor's intention. We tried not to emphasize financial gain. Instead, we focused on creating a more environmentally friendly district. So, making money was not the primary concern. However, the laws and regulations in Turkey unfortunately hinder the progress of such projects."

Interview Turkey, Male, R2

"There are not only technical and economic problems in this process, but also serious problems regarding legislation... When we activate the facility, we cannot benefit from tax exemption, because the distribution companies have already been privatised. When you try to cooperate with a privatised institution, the trade between cooperative partners cannot be realised since the Turkish Transmission Company is not a shareholder. Therefore, the cooperative cannot benefit from VAT and corporate tax exemptions."

Interview Turkey, Female, R1

The next figure presents the barriers and challenges experienced during the establishment and operation of the Renewable Energy Cooperative.

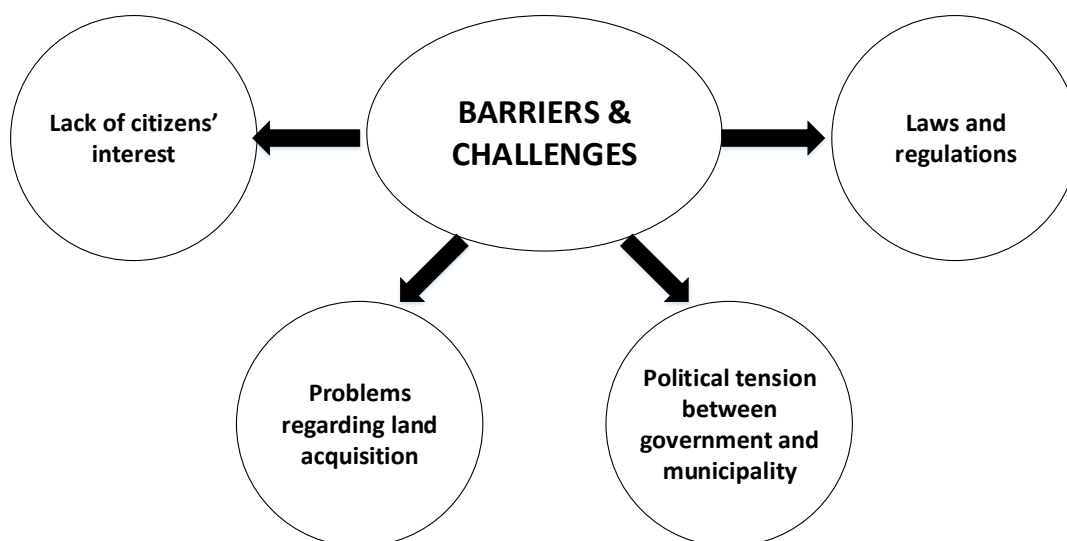


Figure 3- Barriers and challenges experienced in the establishment of the cooperative

3.4.2.2 Influence of the collective in individual energy behaviour and lifestyle

When the cooperative idea first emerged, it was expected to have a greater influence on the members' energy lifestyles. However, the abovementioned barriers and challenges prevented the initial targets being achieved. In this sense, the Renewable Energy Cooperative could achieve considerable improvements concerning the perception of its members on the importance of environmental sustainability.

"It contributed a lot, from my point of view, in terms of the projects conducted within the framework of sustainability. We could contact communities such as energy cities and Cittaslow, thanks to the energy cooperative. Although we could achieve the initial targets, this project paved the way for other projects and initiatives."

Interview Turkey, Female, R1

Additionally, the cooperative enabled its members to learn more about the legal procedures regarding the Turkish energy market and to increase organisational capacity thanks to new methods applied during the research and development phase. In this sense, it can be concluded that the efforts to establish an energy cooperative greatly raised citizens' awareness and their level of knowledge.

"As the directorate, I think that the capacity of our staff has increased significantly in this area. If there is such a thing as an organisational capacity increase, we have experienced it. In this initiative, everyone has made investigations and conducted interviews. This job definitely has strengthened the coordination in our directorate."

Interview Turkey, Female, R1

"The only positive contribution of this project to us is the fact that we have become very knowledgeable about the regulations and legal deficiencies now."

Interview Turkey, Male, R2

It is also interesting to see that the cooperative members are so determined and positive about the future of the cooperative. Despite all negative incidents and barriers experienced during establishment and operation phase, they remain enthusiastic about future developments.

"I have an individual philosophy. I want to transfer my knowledge and experience to the next generations. Therefore, I take part in these kinds of social organisations and non-governmental bodies. Nothing will weaken my enthusiasm."

Interview Turkey, Male, R3

"We are so determined about this issue. We already minimised the technical size of the cooperative; we believe that our job is much easier now. We found 25 partners and we decided to collect 4 thousand USD from each... There are engineers and they are highly committed to this issue. So, we are still hopeful about the future of the cooperative."

Interview Turkey, Male, R2

3.4.2.3 Evolution of the collective as influenced by its members

The case study and interviews reveal that the Renewable Energy Cooperative has to overcome a variety of political, social and legislative problems. On the positive side, the cooperative members made a great contribution during the establishment phase. In this sense, the ministerial and bureaucratic processes were managed in a way that the coordination between the cooperative and government agencies could be successfully ensured.

"My major contribution to the cooperative was based on the evaluation of the feasibility studies. Moreover, I personally carried out all the ministerial and bureaucratic processes that would enable the coordination between our city and the government agencies."

Interview Turkey, Female, R1

The members also took an active role in informing others about developments in the renewable energy sector, particularly in the solar industry. They transferred their knowledge and experiences to the cooperative to stimulate progress.

"I think I have the ability to persuade other participants about the future possibilities. Apart from that, we have presented our city and cooperative in a positive light."

Interview Turkey, Male, R2

"My contribution here was that I tried to pass on all my knowledge and experience to the cooperative. I also encouraged my friends to research webpages sharing data regarding solar generation. In other words, I helped them to get a better idea what is going on in the solar industry."

Interview Turkey, Male, R3

3.4.3 Insights for policy makers

The insights for policy makers are described based on the following questions:

- ***Why could the collective analysed in this case study be interesting for policy makers? How can the impact of the collective on individual energy-related behaviour be summarised?***

The case study shows that the attitude and efforts of enthusiastic individuals are critical in triggering collective approaches and collective energy actions. Therefore, policies that are geared towards establishing dialogue with citizens, and avoiding obstructing these initiatives, encouraging such individuals and actively supporting individual and collective actions need to be in effect. Possible policies range from providing platforms for peer interaction, communication and spreading ideas, and formulating incentives, to covering start-up costs for implementing collective approaches, and directing enthusiastic individuals to a relevant experience-base, knowledge-base, and consultancy. It is also important to provide clear and concise information. Thus, policy makers can also contribute by identifying domains related to collective energy actions, such as energy cooperatives, and establishing media (e.g. Websites, portals) in order to host the body of accumulated knowledge and expertise in these selected areas.

- ***What are possible policy measures to support this specific type of collective (materials aspect), based on the problems, barriers and opportunities identified by the collective members?***

As with many other situations, economic and financial considerations, i.e. expectations of individual economic gains, are enabling factors for participation in collective energy actions. However, in the case that the collective action requires investments, these are usually energy investments with high initial costs and long payback periods. Moreover, individuals are not always aware of the lifetime costs. Policies that are designed to help the alleviation of these disadvantages are another approach to encouraging collective energy actions. Policies in this respect should allow and encourage individuals to generate their own energy, developing mechanisms for directly reflecting gains in their electricity bills, and improving the conditions for collective investments.

Problems with the associated legislation including the inconsistencies between legislations, uncertainty and frequent changes also emerge as hindering factors, necessitating dependable and unambiguous legislation, as well as the harmonization of different legislation frameworks.

Another domain of improving the policy toolbox is the coordination of the efforts of different stakeholders. The case reveals issues with differing/opposing approaches of the local and central government representatives. This significantly discourages individuals and collectives from engaging in collective energy actions, emphasizing the need for policies for establishing coordination and consistency among public actors, and in general among stakeholders.

- ***What are possible policy measures related to awareness creation and values (norms aspect)?***

A related set of policies can be designed for increasing the awareness of individuals and collectives about the need for transition to more sustainable energy lifestyles and practices. These policies could include systematic information and action campaigns, tailored for specific individuals or collectives.

Another aspect that can be derived from the case is the role of renewable energy initiatives in fostering collective energy actions. Renewable energy initiatives are significant drivers in transforming individual initiatives to collective initiatives. This is also supported by other significant factors, including environmental concerns and energy self-sufficiency. Thus, policies aimed at spreading the use of renewable energy can also increase collective energy actions. These policies may be in the form of incentives for renewable investments, tax exemptions, purchasing excess production, facilitating grid connections for renewable energy production facilities, and providing access to beneficial funding opportunities.

Clearly, collective energy actions are affected not only by enabling factors. There are also hindering factors for which resolution policies may be formulated to support collective energy actions. Collective actions may be initiated by a core group, but they cannot succeed without the interest and support of the wider community or society. In this respect, policies that increase awareness about such initiatives through the sharing of relevant information across the community can be beneficial. Also needed are schemes to support the collectives regarding participation management, access to a wider community, and increasing participation in collectives through a leaner and easy-to-comprehend process.

3.5 Norway

3.5.1 Description of the collective

3.5.1.1 Background

Svartlamoen was previously an industrial area but was re-regulated in 2001 to become the first and only experimental urban ecology area in Norway. This re-regulation was a result of a conflict between house occupants and the municipality that was going on from the early 1990s. The agreement was done in collaboration with the residents and according to the LA21 principles⁷ where the main objective is a high degree of real user participation in development. The area development should come from below and from the inhabitants and not property developers or other top-down means. The municipality still owns most of the properties, but the area is managed by Svartlamoen resident association (founded in 2001) and Svartlamoen cultural and business foundation (founded in 2006) (Hammer 2018). The resident association has hired a general manager to take care of the area. She has many roles and she put us in contact with the tiny house owners in this collective. Her formal role is to take care of the economy like getting the rent from the tenants, making plans for maintenance, writing building applications and projects. She also describes her own role as being an informal social worker, a psychologist and a peace negotiator.

Svartlamoen is a consensus driven area, which means that everyone must agree before deciding on changes. The agreement is made through two platforms of democracy. One is the neighbourhood meeting and the other is the resident association. Both have monthly meetings. Svartlamoen is also divided in five smaller neighbourhood units that also organise their own monthly meetings, volunteer work and preservations (Hammer 2018).

The residential association has many volunteer sub-level groups. One such group is the so-called “moving group” that decides the people that are allowed to move into the area. To live in the area, you have to apply to the resident association. The moving group then evaluates the application based on different criteria. Examples of things that count positively include personal skills, being an immigrant, artist, homeless or if you have social and economic challenges (Hammer 2018).

The Svartlamoen resident association manages the houses in the area, but the municipality owns them. To coordinate this, they have a common board. The board consists of the two representatives from the resident association and three from the municipality. This means that the relationship between the area and the municipality is tightly knit.

This is one area in Trondheim where placing and building tiny houses is allowed. Because of the area's status as an experimental urban ecology area it is exempt from the technical building regulation and its minimum standards for new buildings (Tek 178). In many ways, Svartlamoen also represents a counter culture, and it is an area that works to nurture practices that are different from those of the rest of society. Hence, it is a place that differs significantly in energy culture, due to differences in materials, practices and norms, often rooted in anti-consumption and sharing economy ideals. From the ECHOES project's perspective, this is an interesting area in general, but we have chosen to focus on a recent development in the area: three tiny houses placed here by two couples and one single man over the last four years. One of them operates off-grid with a PV system and a battery. The tiny houses can range from 10 to 50 sq meters, the biggest in this case was 35 sq meters and they are easy to move to a different location. For us, it is interesting to understand how the tiny house owners have adapted Svartlamoen values and energy practices or not. In many ways, the people who live in this area are living a low energy lifestyle with the culture and community that is built around fighting capitalism and promoting more autonomous lifestyles. An interesting twist with this case, however, is that the tiny houses

⁷ The LA 21 principles are based on the Agenda 21 action plan developed during the UN Conference on Environment and Urban Development in Rio de Janeiro in 1992, better known as the Rio Conference.

⁸ <https://dibk.no/byggereglene/alt-om-tekl/>.

are the only ones in the area that are owned by their builders. Those who live inside can move the house at any time. Two of the houses were built outside the area and then moved in (prefabricated houses), the last house was built in the area.

3.5.1.2 Motivation and objectives of the collective

The motivation for the collective was to keep the living costs as low as possible, to facilitate lives that are free from what is perceived as the pressure of capital. Svartlamoen contains about 35 houses and about 300 single contracts with tenants according to R5. The tenants pay a rent. The tiny house owners pay rent for the ground they have their house on. This income is used to maintain the buildings. Most work is done by the collective itself. Hence, the members' investment is not a classical capital investment, but rather one of paying their rent, and spending substantial time on collective work. The organisation has a flat structure with consensus-driven decisions, and they are working according to the LA21 principle as mentioned above, where everyone has equal right to be heard and decisions come from the collective of users. The inhabitants do not have any formal obligations except for paying the rent but there is always a group of 30-50 very active people that are working in different self-propelled groups.

3.5.1.3 Energy-related technologies dealt by the collective

The energy relevant technologies in this case are the three tiny houses and their different building solution that has been enabled through the application of the LA21 principles that allows not following the strict requirements of the Norwegian building codes. Two of the tiny houses are connected to the grid, while one is off-grid. This house has a PV and a battery. This house was also built with about 50 % recycled material. Two of the houses are disconnected from the water grid. One collects rain water and the other carries water from the neighbours. The awareness of energy use and water use is high among two of this tiny house owners, while the third asserts that just living in a tiny house is energy efficient. This third owner is a part of the Svartlamoen collective and is in different ways part of the voluntarily work to maintain the neighbourhood.

3.5.1.4 Engagement of the members in the activities of the collective and social interaction within the collective

The collective has many different groups; the examples include a gardening group that takes care of the shared garden that everyone in the area can use, and the workshop group that repairs things in the area. The so-called operations group takes care of the maintenance and makes payment agreements with the residents that are low on money. The media group makes the areas' newspaper with information, including the agenda for the next residential meeting. Overall, in a collective composed of about 300 people just 30-40 persons are very active according to R5. The typology and quantity of activities that the inhabitants carry out is up to them to decide.

The different groups are informal, but still formalised groups are active in the area. They also provide many meeting spaces where the collective has potential to develop community spirit between the members. According to Tjora (2018) communities contain six layers: solidarity, interaction, identification, communication, voluntary work and physical presence that work together to build the community among the members of the collective. Svartlamoen has all this and the tiny house owners have the possibility to act on all these through different groups and levels of activity. Beside the formal groups and the social life, the tiny house owners are also planning to establish a tiny house association.

The tiny house inhabitants are part of the collective in different ways and interacted socially both formally, e.g. in different groups, and informally, e.g. through joint activities. One has organisational duties, being a member of the so-called housing group, that is, the group that decides who is allowed to move into the area. Another tiny house inhabitant is engaged in the building group that repairs things and a third one is thinking of joining the garden group that is responsible for the vegetable growing in a shared garden.

All the tiny house owners attend the monthly neighbourhood meetings and annual general assembly of the area. When the tiny house owners were applying to the collective of Svartlamoen to place/build their tiny houses they applied to the moving group (mentioned above), but they also needed to present themselves and their tiny house plans in the annual general meeting and in neighbourhood meetings.

3.5.1.5 Values and culture of the collective

The collective actively promotes shared values and low consumption. Personal consumption is frowned upon and buying new things without a good reason is considered socially unacceptable. The values of reuse and sharing are high. Further, there is a shared anti-capitalist orientation in the area that highlights the virtues of not working too much, and rather living a good life independent from the labour market. This is also the rationale behind the low living costs in the area, and the very active policies concerning who can and cannot live in the area.

3.5.1.6 Enabling factors for the foundation of the collective

When the first houses in the area were occupied one crucial factor for this collective was the support of the creative environment in Trondheim. Two of Trondheim's celebrated painters painted on a building wall at Svartlamoen in protest of a planned gentrification of the area in 1996⁹. The director of the buildings in the municipality stated that it was forbidden to paint, but the artists did anyway. The main motivation for this area is coming from below, but it could not be developed if the municipality had not listened and found a solution. The LA 21 principles and that the municipality defined this area as an urban ecological area. Hence, while this is a clear case of bottom-up development, its present form also depends on pragmatic co-existence with the local government.

3.5.2 Main outcomes of the interviews

The following table offers an overview of the persons interviewed in the Norwegian case study.

<i>Respondents</i>	<i>Age</i>	<i>Sex</i>	<i>Professional status</i>	<i>Place of living</i>	<i>Family status</i>	<i>Role in the collective</i>
R1	30	M	Professional musician	Tiny house	Single	Supportive and active, but not in formalised workgroup
R2	27	M	Own carpenter business	Tiny house	Common-law marriage	Supportive and active, but not in formalised workgroup
R3	25	F	Yoga instructor and politic	Tiny house	Common-law marriage	Supportive and active, but not in formalised workgroup
R4	25-30	M	Construction engineer	Tiny house	Common-law marriage	Active, formalised in a working group
R5	34-40	F	Daily manager in the collective	Another place in town	Family with kids	Active, formalised hired of the board

⁹ <https://www.adressa.no/kultur/article11540480.ece>

3.5.2.1 Main motivations and expectations of the members of the collective

The motivation for the tiny house owners to be a part of this collective was mainly that this was an area that allowed the placement of tiny houses. Only one woman in one of the couples actively wanted to live in the area because of the community. She had applied to be a part of the collective in the past and had rented a room there for some months. When she met her boyfriend, a carpenter who dreamt about building his own house, they found out that it was more convenient to carry out their house project in this area because they perceived it to be less bureaucratic with a smaller share of paperwork. Importantly, the area is exempt from the relatively strict building codes (Tec 17), which sets a standard for all new Norwegian buildings. Hence, this building code represents a barrier to the implementation of such buildings. On the other hand, this building code has been highlighted as very important in pushing the construction industry in the direction of more energy efficient solutions. Hence, the case illustrates the need for more tailor-made and multi-purpose building codes. The other tiny house inhabitants were unfamiliar with the area and did not know that this was a collective in an experimental area with an outspoken culture of sharing and antigrowth. Again, however, the more experimental building code in the area was essential for their choice:

"Tiny houses are temporary residences, they are temporarily placed. [...] It is built in an area that is regulated for experimental housing construction then you have a good reason to build this here. And that regulation is quite unique in the world context."

Interview Norway, Male, R2

This argument was highlighted by all tiny house owners. One house was built in the area, but the two other houses were built outside and then moved to Svartlamoen. The respondents expressed that part of their motivation was rooted in a desire to build something on their own, as well as being able to live relatively cheaply. Hence, a combination of being free, having fun and mastering construction and one's own life appear central. Their expectation and knowledge of the established collective was low for four of these tiny-house owners, but all of them considered themselves as a part of the collective in some way today. On the one hand, this related to new social ties and knowing the neighbours, but on the other hand, they all also reported taking on new duties and adopted some of the social norms of the area:

"Yes, if there is a wool shirt that is a bit ragged, then there are some who see it and say yes you should have a new wool shirt soon. Okay, why? It has a function, I get warm... (...) Living like this has influenced me too, a bit like that. I ask myself: do I really have to buy new ones?"

Interview Norway, Male, R1

This tiny house owner has become more aware of the value of things and the work it takes to make things. Hence, this case is illustrative of the dynamics described in much recent literature: through engaging in new practices and with new material elements – as well as with new social environments – one might also change one's norms and behaviours (e.g. Skjølsvold, Ryghaug and Heidenreich 2018). Our respondent described that building his own house made him much more aware of the cost of the material, the handcraft and the time it took to make it.

According to the interviewees, they have experienced several benefits from being part of the collective. First, they are allowed to experiment and find solutions that fit them. Learning to live in such a building and making it work in an everyday life context is a big job. How to deal with infrastructure access and resources such as electricity and water? One house works to remain off-grid by using a battery, a PV system and a gas oven. It also has its own 1000-litre water tank in the ground. PV was not that common in the collective before the tiny house owners calculated that the costs of connecting to the energy infrastructure would be as high as installing PV and a battery pack. This off-grid tiny house has also created much interest in such solutions amongst other tenants in the area. Another tiny house is connected to the electric grid but must collect water on a daily basis in the basement of one of the neighbours to fill up his personal 25-liter water tank. The third house is connected to the water and electricity grid.

Hence, one key feature of the combination of these tiny houses and the regulations in this area, is that it opens for experimentation concerning what it could mean to live a low energy lifestyle, and how such lifestyles can be produced through different relations with broader infrastructures.

Another benefit is that in this collective there are more self-builders who live in different types of buildings, and thus, they can get help from their neighbours. Like one of them stated:

"Yes, I got such occasional help. It was in the summer, and people just came up to ask, 'oh what are you doing?' Can anyone come and keep a plank here? 'Well, okay'."

Interview Norway, Male, R1

Such occasional help happened when he was building his own re-use porch.

Finally, this area is low cost living and follow the re-use culture which fits with the tiny house owners that would like to live small. The small benefits are that they can borrow the common garage with equipment for making their own furniture. The sharing culture is a big benefit, and the resident association do also have a car that the inhabitants can use if they need to get bigger material or equipment.

3.5.2.2 Influence of the collective in individual energy behaviour and lifestyle

According to the interviewees, the common value of non-consumption mainly influences their lifestyles. This is strengthened by living in physically small buildings. Economic capital has little status in the area, but cultural and social capital has a high status. This leads to what we in ECHOES call a low-impact lifestyle (see D.5.2). The low-impact lifestyle by our respondents, is described as an active choice, not something that they were forced to do. This, then, differentiates our respondents from people who live similar energy lifestyles due to energy poverty, and thus being structurally forced into it. To live in a tiny house should be a choice, the respondents argued, and not part of a tactic by government to save money. One of the respondents feared that tiny houses would become part of government policies to ensure a permanent place of residence for people with addictions or mental health issues.

"We choose it [...] I have been like this all my life, never see the point of having lots of things. I do not need materialism, for me it is right to live here (with a low energy lifestyle) [...] but with that I do not support the use of poverty happiness, I do not want to say that we are poor, we are not poor, we have chosen this ourselves."

Interview Norway, Female, R3

Another interviewee stated that tiny houses was no solution to poverty issues, nor to what she perceived to be a set of the structural problems in contemporary Norwegian housing markets. A key issue here is the increasing social division between those who own a place to live, and those who do not (Turner and Wessel, 2019). In Norway, 77 % of people own their own home, and home-ownership has become a key way of building capital (SSB, 2017). The collective studied here, is based on renting and the culture of the area builds on values that are not rooted in capitalism. As respondent R5 declared: *"I think there is a big difference between experienced poverty and actual poverty. If you can live in a wealthy area with a decent income, you can experience that you are poor, right."* In this collective the sharing culture enable community participation without focusing on ownership, in an active effort to avoid the stigma that can otherwise come with borrowing, sharing and mending. R5 deepend this with an example: *"if someone is going to a Christmas party or a gala dinner they ask the collective if some has a nice dress they can borrow"*. R1 stated that *"You do not have the pre-defined need to buy new things here. It's more like 'oh, this is second hand and that's cool'"*. The tiny house owners are been integrated in the re-use and the sharing culture that exist in this collective.

Regarding the factors that influenced and favoured the change of individual lifestyles, the small size of the tiny houses is considered important. It signifies a material limitation of available space, and hence works to de-incentivise excess consumption. The limited access to water infrastructure also sensitized two of the house

owners to the limits of this resource. This smallness in material size and infrastructure is coupled with processes of socialization, in which the home owners adapt to and adopt many practices from the areas pre-existing culture. Through their presence, the houses also increase local engagement with energy and environmental issues, creating an increased interest in green technologies and tiny house living.

Two of tiny houses were built outside and moved in by a truck. These two houses have built a winter garden in front of their main entrance in re-used materials. The winter garden or porch has a practical purpose, because it reduces the heat-loss from entering and leaving the house. Just as important, it has a symbolic meaning. It is a habit in the collective to use re-used materials, because this symbolizes the area's main values. Even if the tiny house has elements of re-use like the windows, they look modern and stand out from the rustic style in the area. Hence, this porch retrofit is a way of fitting the tiny houses to the distinct culture of this area – as part of what we can call a domestication process. One of the tiny house owners explained: *“I think it is bit cooler [...] Purely aesthetically, I think it gives more life when it has lived a life, it is a used plank”* (R1). This owner did build his tiny house mainly of new material before moving in to the area. We can assume that his taste has been shaped by the collective.

Other individual lifestyle changes were associated with the use of water. The tiny house owner with the smallest water storage tanks declared that he now *“use just a thin beam when washing things”* (R1), primarily to avoid the work of getting more water. When asked if the tiny houses had changed their ways of living, R4 deepened in it:

“R4: I was actually pretty non-materialistic already. But, maybe a little. If you live here then there is no point in buying a cool car, no one cares. [...] if you do not change, then you almost adapt.

Interviewer: Have you adapted yourself?

R4: Oh, yes, I have probably changed myself, too, I think most would have done that. You are exposed to new ideas and that's just what happens, so yes, I probably have.”

Interview Norway, Male, R4

The personal change occurs as the tiny house owners are exposed to new ideas over time, and when the collective opens up and the individual can discuss and explore how to live in a more re-use-oriented community. The integration in to such communities entails learning what is socially acceptable and what is not and proceeding to experiment with new ways of living within the new norm.

3.5.2.3 Evolution of the collective as influenced by its members

The integration of the tiny houses in this collective has changed the collective formally in the sense that these houses are the only ones in the area that are owned by their residents. Hence, they have opened to privately owned housing, but in a distinct way that is also outside of the mainstream societal norm. This has created a large interest in this form of housing in the area, and today there is a long waiting list of other tiny house builders and owners that want to join the collective and establish themselves in the area.

The tiny house owners were largely similar to other inhabitants in this collective. Some were very active and some not, but all had the equal right and possibility to be a part of decision-making processes.

3.5.3 Insights for policy makers

The insights for policy makers are described based on the following questions:

- ***Why could the collective analysed in this case study be interesting for policy makers? How can the impact of the collective on individual energy-related behaviour be summarised?***

The case study provides further flesh to much literature over the last decade that has highlighted the merits of experimentation as a mode of local and urban governance (e.g. Bulkeley et al. 2011). Through applying principles based on the LA21 charter to define this area as dedicated to ecological experimentation, the municipality have nurtured a space which has allowed a creative area and a creative collective to evolve. Within this context, there was also room to experiment with housing and ways of living. The relatively strict building codes in Norway are an obstacle to the types of housing that we have explored here, but the experimental and flexible arrangement made here is essential. Over the coming years, it will be crucial to open for such experimentation on larger scale, while still retaining the ambitions of energy efficiency and safety that are at the core of the rationale for existing building codes.

- ***What are possible policy measures to support this specific type of collective (materials aspect), based on the problems, barriers and opportunities identified by the collective members?***

Municipalities are in this case the key stakeholder for facilitating local grassroots initiatives in Norway. In this case, the establishment of this semi-autonomous area with a high degree of self-determination also represents an interesting experiment with respect to democratic practices of participation. Much literature over the last years has suggested that this is central, if one is to move beyond incremental innovation within obdurate and path dependent systems (e.g. Nussbaum 2011). The solution studied here is no silver bullet and will not work everywhere. Rather, what it points towards is the merits of active tinkering within the policy making process to open up for new voices, new practices, new ways of doing and new ways of living. Local, and urban governments have a unique opportunity when it comes to doing such experimentation.

In the ECHOES-context, this focus on experimental governance serves to bridge the focus on individuals with more collective ambitions. Experiments can entail transforming the built environment and material aspects of the energy culture. Just as importantly, however, and less analysed in the energy cultures literature, is the importance of changing and opening up the institutional configurations in which energy cultures are enacted and performed. There is a growing interest in tiny housing in Norway, and through nurturing alternative areas like this, the interest can be converted into new buildings, and in turn new lifestyles and inspiration. On the other hand, one probably should not limit experimentation to 'exotic' areas such as this one, but also bring experimentation into the mainstream.

- ***What are possible policy measures related to awareness creation and values (norms aspect)?***

Whereas tiny houses in an anarchic and anti-capitalist area can strengthen that culture, they could take on other roles in other neighbourhoods, and probably to a much stronger degree challenge mainstream and conventional ways of thinking about what it means to live in a home. This way of thinking can also be broadened to include wider relationship to infrastructure. Again, the experimental form of these houses and the area has catered for a series of ways of living with or without the large infrastructural systems of electricity and water production. This diversity might point towards a wide range of potential lifestyle pathways, in which the way people live, how they get their energy, water and transport services covered are bundled together in very different ways.

3.6 Austria

3.6.1 Description of the collective

3.6.1.1 Background

The chosen collective in Austria is “Die Kleine Farm” (eng. The little farm) and is the second so-called Community Supported Agriculture (CSA) in Austria, founded in 2012. This collective has 100 households (about 250 persons) as members sharing the harvest, and on smallholder farming family owning the agricultural land and cultivating vegetables, fruits and cereals.

This CSA and CSA's in general promote the principle of agroecology. Agroecology is not only based on truly ecological production principles like building life in the soil, recycling nutrients, the dynamic management of biodiversity and energy conservation at all scales, but it is also built on the principles of solidarity economy of shared risks, responsibilities and benefits (see below for more details). It creates a direct link between producers and consumers, between rural and urban populations, and most importantly offers the opportunity for consumers to directly connect with living systems and ecosystem health as basis for human health, rather than with technologies. A definition of agroecology in the context of CSA is provided in Volz, 2016.

This can create a strong personal commitment to sustainable development in general and the interest and awareness about the consequences of personal lifestyle in other areas, including those in the focus of the ECHOES project as housing or mobility.

This collective has been initiated by an Austrian-American couple after ten years of learning about agroecology, CSA and also seed legislation in California, U.S. They decided to move to Austria, buy a farm in Southern Austria (St. Nikolai im Sausal, Flamborg) and realize the second CSA in Austria in 2012. The collective was started together with about 15 individuals partly engaged in the group “Attac” (an international movement promoting economic models based on social justice and ecological sustainability as alternatives to current globalized economy) and has thus merged the visions of truly sustainable agriculture and of local economy based on social redistribution. It has meanwhile grown to 100 harvest sharing members.

3.6.1.2 Motivation and objectives of the collective

The primary motivation for founding this collective was to create a win-win situation for the farmers and the consumers: the farmers' activities are based on pre-financing and risk-sharing by the CSA members. Each year in the beginning of the season the yearly “budget” is collected in a pre-financing meeting. Each member contributes with currently 800 Euro each year on average, but the contribution can vary based on the financial possibilities of the member. The members are not informed about each other's contributions. Each member puts a piece of paper with the contribution written on it into a hat, and nobody sees what other members are contributing. If the overall contributions are not sufficient to cover the costs of the yearly production, the hat goes around again.

The harvested products can be picked up by the members directly at the farm and once a week the farmers deliver the products also to two locations nearby the larger city of Graz, where they can be picked up by the collective members. The risk of harvest shortfalls is shared equally, there is no insurance since it is too costly. In case unplanned investments occur, additional contributions are collected among the CSA members.

This economic model results in a higher planning security for the producers, and in the freedom to establish agro-ecological farming practices independent of the agro-industrial system. Planning security also includes avoidance of overproduction and wasted resources. The consumers receive healthy, seasonal and regional food and they experience direct contact to the producers and the ecosystem, resulting in a high awareness of ecological food production methods as well as of the associated true production costs. True production costs

reflect increased labor costs for small scale agroecological farming combined with lower productivity compared to industrial agriculture, as well as a fair income for the farmers.

The collective has 100 harvest sharing members (about 250 persons) and the farmers' family who own and cultivate 1.5 ha for vegetable production and 5 ha for mixed pasture and cereal production. The collective is non-formalised, mainly due to tax-relevant duties of associations. Therefore, this collective has no statutes or written contracts. 100 members is currently the optimal and maximum size for this CSA because a larger size would require significant additional investments in agricultural machines which would massively alter the way of the agroecological farming practice as described below.

3.6.1.3 Energy-related technologies used by the collective

The farming activities are explicitly "low-tech", the only energy-relevant machine is a small tractor used mainly for preparing the land for cultivation. Most working steps are based on manual work. The size of the collective is kept intentionally small with maximum 100 harvest sharing members, as more members and larger cultivated area would require the use of more and bigger machines.

The house of the farmers' family living next to the agricultural land is a renovated 200-year-old house typical for the region, heat is supplied by solar collectors, supported by a biomass heating in the winter.

The only additional energy-relevant activity is the weekly transport of the harvest to the pick-up spots in the nearby city of Graz which involves about 100 km/week driving with a small van.

3.6.1.4 Engagement of the members in the activities of the collective and social interaction within the collective

Generally, engagement in practical activities is voluntary. Due to different interests and life situations of the members, the engagement varies from "just consuming" (estimated 20% of members) to "participating in collective festivities" (estimated 40% of members) to "regularly actively supporting farming activities" (estimated 40% of members). The farming activities are largely covered by the farmers, with the support of apprentices, and by members in the following way: during the work intensive months from May to summer, each Friday at least 5 CSA members help with weeding for about 3 to 4 hours. Each month one member coordinates this activity. On two days in summer and fall all members are invited to help with the harvest of potatoes and of root vegetables. These days are also used for common festivities. Members also support the repair of farming infrastructure if required. In addition, talks and seminars are organised mainly related to farming and ecosystem topics or food processing and preservation. All these activities are supporting the community building and the exchange and discussions among the CSA members.

3.6.1.5 Values and culture of the collective

The collective is called "Little Farm – farm of diversity". Diversity not only relates to the plant diversity (more than 400 different plants are cultivated) but also to societal diversity. The CSA is based on the commitment to equality and mutual respect of all members, no matter religion, sexual orientation, profession, or age. It is also built on the principles of solidarity economy of shared risks, responsibilities and benefits, this also includes redistribution of wealth. In practice, decisions concerning farming activities are taken usually by the farmers based on their experience. Each week they send a newsletter via email to all CSA members to keep them informed about developments at the farm. Decisions concerning all the members of the collective are taken based on the principles of sociocracy and discussions are moderated by members of the group. Sociocracy can be described as a system for decision making with some basic processes including (1) proposal-forming and (2) consent decision-making, (3) selecting people for roles (elections) and (4) role-improvement feedback, (5) a governance structure of self-organizing linked circles (committees), (6) a clear aim or ongoing objective for

every circle, and (7) feedback loops built into every proposal ¹⁰. New ideas are implemented by its initiators and self-established working groups. However, the collective has no written statutes.

3.6.1.6 Enabling factors for the foundation of the collective

There has been no specific support by public institutions, incentives or the legal framework during the foundation of the collective. The only incentives available are those available for any farming activities, which do not specifically support small sustainable farming activities since they are calculated based on cultivation areas. In the last 10 years more than 30 CSAs have been founded in Austria, and a CSA-network has been founded as well (<http://gartenpolylog.org/netzwerk>), which does not receive any public funding or support either.

3.6.2 Main outcomes of the interviews

The following table offers an overview of the persons interviewed in the Austrian case study.

Respondents	Age	Sex	Professional status	Place of living	Family status	Role in the collective
R1	35-44		University degree, paid employed manager at children's home	City of Graz	Family household with 4 children	Active engagement in the collective, member for 5 years
R2	55+	F	University degree, retired teacher	City of Graz	Single household	Active engagement in the collective, member for 5 years
R3	45-54		University degree, self employed farmer	Site of the farm	Family household with 2 children	Founder of the collective in 2012
R4	55+		University degree, paid employed bank manager	Small town	Family household with 4 children	Passive member in the collective, member for 5 years

3.6.2.1 Main motivations and expectations of the members of the collective

For R1 the starting point was the life situation of the family with the third child expected which made them think about the impacts of current personal lifestyle on future living conditions of their own children and thus about a more sustainable and healthy way of living and consuming, e.g. where to buy which products, how to reside. During that period, the interviewees watched a movie about agroecology, followed by a talk by the founders of the CSA "Little Farm" in the cinema. This experience raised their interest in participating in the CSA, thus following their intention to actively change something in their personal lifestyle.

"It was with the children in our family, before it was not so much my topic. We thought, how long should the world still last? We thought about where do we want to live, where do we shop, what do we shop? We read a lot about fair shopping. We watched movies in the cinema about agriculture and other topics. The starting point for our interest in this collective was that we listened to the founder of the collective discussing these topics on the stage in the cinema."

Interview Austria, Family, R1

¹⁰ <https://ecovillage.org/sociocracy-in-genna/>

They state that their expectations have been fully met and the family has been member of the CSA for 5 years. Besides the direct benefit of consuming healthy food, the fact of being member of a dedicated community nurtures the idea of sharing, which has initiated many other activities (see below).

In the case of R2, the interviewee found in the collective a realisation of a personal vision to reconnect (after the childhood on a farm) with organic farming activities. Another important factor for participation in the collective was the community and social aspect. The collective therefore serves as “vehicle” to bring an already existing idea and vision into practical life. According to her, the expectations have been fully met and states that engaging in this collective is a very rewarding experience. The interaction with other members allows insights into different cultures, lifestyles and concepts of sustainable economy.

“I like to collaborate. That’s the idea of the collective that you collaborate, contribute, without payment, and that you also support the highs and the lows. I was fully aware that when I joined the collective, I also carry the risks. In case I don’t get my vegetables, it’s ok for me although I paid for it. This collective meets my dreams 100%, that I can work in a farm, and the community is very enriching, I get to know many new things, culture and lifestyles.”

Interview Austria, Female, R2

The initiators of this collective (R3) are an Austrian-American couple who learned about ten years of about agroecology, CSA and seed legislation in California, USA. Due to family roots in Austria, they decided to buy a farm in Southern Austria (St. Nikolai im Sausal, Flamberg) and realise the second CSA in Austria in 2012. The motivation was to change from a more academic working environment to the practical realisation of sustainable farming. The collective was founded to ensure a sustainable win-win situation for the farmers and the consumers, offering the farmers planning security, and in the freedom to establish agro-ecological farming practices independent of agro-industrial practices.

“I have been working as lawyer, and worked with the question: to whom does life belong? Especially seeds, how can we preserve seeds, because it is a community inheritance which has been developed by generations. Today seeds have been privatised by hybridisation and you have to buy the seeds each year. So I dealt with the situation of farmers who have bowed to our economic system and buy hybrid seeds. During my studies in the U.S. I wanted to investigate the cooperative agriculture which tries to decouple agriculture from market economy, which is the idea of CSA. And then I got caught in the practical realisation as I found it fascinating. We said, we try it ourselves to live a more sustainable life, to preserve old seeds and to try, how does a CSA in Austria work.”

Interview Austria, Family, R3

According to their experience (R3), the concept of this collective has been successful and the benefits from the farmers perspective have been already described above. Still, the family income from farming activities is, in the long-term, not overall satisfying opposed to the hard physical work involved. The reason is that agro-industrial and supermarket prices for agricultural products still pose a very low benchmark for end consumers (and thus also for the members of this collective) which cannot be raised infinitely. Therefore, they set a limit to the financial contributions of the collective members.

Finally, R4 considers himself an early adopter of sustainable technologies and a sustainable personal lifestyle, at the same time being fully aware of the high living standard and related energy consumption of his family. He found in the collective an alternative he wanted to support, though he does not engage himself actively. Due to his professional background, he is familiar with the concept of risk sharing as part of this collective, which he sees as an alternative to commercial insurance. He feels satisfied with his membership and he has the feeling of contributing to a valuable activity without having to engage personally. He feels very well informed about the ongoing activities at the Kleine Farm based on the weekly newsletters sent by the farmers.

3.6.2.2 Influence of the collective in individual energy behaviour and lifestyle

In the case of R1, the basic attitude that has developed is described with “ownership destroys the world”. The idea of sharing - in the case of the CSA sharing the land, the food, the costs, and the risks – has initiated ideas of sharing in other areas of personal life. The family lives in a building with 8 households, where the idea of sharing is implemented in several ways. Three other households in this building have joined the CSA as well (one of them is interviewee R2). For pick-up of the CSA products delivered weekly to two pick-up spots in the city, these four households are currently testing a cargo bike with the intention of sharing it for inner-city-transport. They also consider having a shared car for all households in the building. Currently the conventional gasoline driven family car of the interviewees is shared with another owner of an electric car. For long driving distances the conventional car is used, for short distances the electric car is shared. Together with R2, as owner of the residential building, renewable energy production at the building has been considered.

“In our house we have inspired to other couples to participate in the collective. Together we had this idea to invest together into a shared cargobike so that not each of us would have to drive to pick-up market for the weekly vegetable delivery. We thought of a shared car as well. We would also like to have a PV installation, but it is not permitted on the roofs due to preservation requirements. In the house we also share a raised vegetable bed in the garden, for some tomatoes, and pumpkin. We share a wood workshop and the toolkit and the internet connection as well with the other residents.”

Interview Austria, Family, R1

R2 lives in (and owns) the same building as R1. As described above, the plans for renewable energy production in the building could not be realised due to preservation requirements of the building. In the shared garden of the residential building, R2 raised a small building following the idea and concept of ecovillages, using only natural building materials and without installation of heating /cooling devices. It is used as a shared space by the residents and was planned also to be used for youth work. This project started already before R2 joined the collective but is still mentioned here because it is based on the same general attitude of R2 of actively contributing to space and awareness of sustainable way of living. Mobility patterns of R2 have not changed due to the absence of an own passenger car also before engaging in the collective.

The lifestyle of R3 before and after founding the collective cannot be directly compared, as the location of living was in California before moving to Austria. The family lives in a 200-year-old building belonging to the property of the farm. The building is heated with biomass and solar energy (in summer). As described above, the size of the farming area has been consciously chosen so that most farming work can be done manually avoiding the use of big agricultural machines.

“When you work so close to nature, priorities shift quite a lot. I think that we consume much less than before. I ask myself with everything, every product I buy, what does this mean for our planet, for the living beings, how much energy is consumed. When you produce yourself, you ask yourself also with other goods, what is behind it? I also believe that also people living in big cities have the desire to interact with living systems. No matter how artificial our lifestyle will be, via food we will always have contact to living systems and to nature. And that’s why it is so powerful to change awareness by food. What I also perceive in our collective is how empathic the members are, how they are truly interested how we are doing as producers. This has exceeded my expectations how people move beyond their consumer role.”

Interview Austria, Family, R3

For R4 the collective represents an investment into a more sustainable way of living. Other investments like a PV installation on his private house or recently the purchase of an electric car have been made as well, however not as a direct consequence of the engagement in the collective. A direct consequence of the collective is the reduction of personal meat consumption, increased awareness about food production as well as about consumption and its consequences in general.

To sum up, this specific type of collective of a CSA offers the opportunity for consumers to directly connect with living systems and ecosystem health as basis for human health, rather than with technologies (e.g. in a PV collective). Working close to nature changes priorities in life. This can create a strong personal commitment to sustainable development in general and the interest and awareness about the consequences of personal lifestyle in other areas, including those in the focus of the ECHOES project as housing or mobility. The open attitude and interest in these topics of other households in the residential building of R1 and R2 has also fostered additional initiatives of sharing, e.g. a cargo bike for inner-city transport.

3.6.2.3 Evolution of the collective as influenced by its members

New ideas in the CSA are usually implemented by those members who initiate an activity and by self-established working groups. This leads to efficient communication processes, avoiding endless discussions with all members. As in many voluntary collectives and groups, a certain share of members actively and constantly contributes. The CSA has been the second collective of this type in Austria when it was founded and has meanwhile found its “optimal” size and has many potential members waiting for an available share of the CSA. Generally, the foundation for this type of collective and its evolvement is trust of its members in the farmers, in other members and in nature, since no written agreements, contracts or commercial insurances exist.

3.6.3 Insights for policy makers

The insights for policy makers are described based on the following questions:

- ***Why could the collective analysed in this case study be interesting for policy makers? How can the impact of the collective on individual energy-related behaviour be summarised?***

The case study selected, a Community Supported Agriculture (CSA), is an alliance of consumers and producers of agricultural goods, built on the principles of solidarity economy of shared risks, responsibilities and benefits on a small scale. From another perspective it is also an alliance between mostly urban dwellers with higher education and income wishing to live and consume more sustainably, and the producers offering to the consumers not only healthy organic nutrition, but also closer contact with natural systems.

This was reported by most of the interviewed consumer members to be a decisive factor when it comes to the impact on individual lifestyle changes: contact with natural systems influences and reduces the consumption demand in general, as awareness for ecosystems and for consequences of our lifestyle is raised by being member of this collective.

Another simple impact on individual behaviour is related to everyday eating habits. Even the least actively engaged member must make concessions to habits in order to cope with those vegetables available in certain periods of the year. Even if that aspect is not directly related to the focus of ECHOES and its technology foci, one can argue that through such small everyday changes, also changes in other areas of individual energy-related behaviour could be initiated.

Changes in other areas of individual energy-related behaviour or relevant considerations as in mobility and energy consumption or production in buildings have been reported by all interviewees. These reported activities or considerations involve the acquisition of an electric passenger car, sharing a private passenger car, an electric cargo bike for inner-city transports shared by the dwellers of a residential building, the installation of PV and the thermal renovation of a residential building.

The motivation of the interviewees to participate in the collective is also the main enabling factor for the changes in individual energy-related behaviour: all interviewees had the wish to live more sustainably already before joining the collective. They can be regarded as pioneers (the farmers initiating the CSA) and early followers (the consumer members) by forming this collective as one vehicle among others to realise a more sustainable individual lifestyle. Therefore, changes in other areas of energy-related behaviour cannot always be seen as direct consequence of

participating in the collective. For two of the interviewees the aspect of sharing (food products, risk, work in the field) triggered ideas of sharing in other areas as well (e.g. shared electric cargo-bike).

• ***What are possible policy measures to support this specific type of collective (materials aspect), based on the problems, barriers and opportunities identified by the collective members?***

As stated above, the interviewed members of the collective can be regarded as pioneers and early followers with high risk tolerance and high mutual trust between producers and consumer members. Based on the idea of multiplying this type of small-scale collective, policy measures should take the perspective of other larger groups of the population (late followers) with a different way of thinking, willingness to pay and risk tolerance. The following topics for policy measures thus focus on specific challenges of a CSA, which include: framework for commercial crop loss insurance affordable for small scale agriculture, labour and tax legislation adapted to CSA, agricultural subsidies adapted to CSA/small scale organic farming, support for farmer training focussing on “low-tech” organic agriculture. These topics include policy measures on EC and national/regional/local level.

• ***What are possible policy measures related to awareness creation and values (norms aspect)?***

The following policy measures address the EU policy level. The main aspect is to create a policy framework for small scale actors and collectives realising alternative economic relationships with mutual benefits for producers and consumers. These relationships are based on principles of solidarity economy with fair prices for producers and sustainable and/or healthy products for consumers and have potential impacts on individual energy relevant behaviour also in other areas, as shown in the case study.

Recent initiatives in the agricultural sector, as the CSA collective investigated in this case study, currently still exist below EU policy sightline as the policy framework (CAP) focuses on large agricultural producers¹¹. A policy area of the EU recently providing a framework for small scale collective practices is the energy policy. The “Clean Energy for all Europeans” package with the recasts of the renewable energy directive (REDII)¹² and the electricity market directive (EMDII)¹³ provide basic definitions and requirements for the activities of individual and collective self-consumption as well as for two types of energy communities. Specifically, “renewable energy communities” (defined in the REDII) and “citizen energy communities” (defined in the EMDII), allow citizens to collectively organise their participation in the energy system. These new concepts open the way for new types of energy initiatives aiming at, in particular, the empowerment of smaller actors in the energy market as well as an increased decentralized renewable energy production and consumption (prosumption).

A renewable energy collective (REC) is described in the REDII as a legal entity:

(a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity;

(b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities;

(c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits.

The REDII further states that RECs shall be entitled to produce, consume, store and sell renewable energy, including through renewables power purchase agreements.

This energy policy framework might serve as an analogy also to the agricultural sector for how the EU aims to provide alternative small-scale actors and collective initiatives a fair access to the markets and thus might help to increase the potential of collectives to influence individual energy behaviour.

¹¹ <http://elcn.eu/news/community-supported-agriculture-csa-misses-out-subsidies-eus-common-agricultural-policy-cap>

¹² Article 2(16) Recast Renewable Energy Directive ‘Renewable Energy Community’

¹³ Article 2(11) Recast Electricity Directive ‘Citizen Energy Community’

4 GENERAL DISCUSSION

4.1 Summary of the main results

The aim of this section is to show an overview of the results of each case study conducted in Task 5.6, particularly focusing on motivations of the members for joining the respective collective, which are the aspects or factors related to the collective that have an influence on its members and which are the areas where this influence happens. The tables below show those aspects for each country involved. The motivations listed below correspond to the small sample of the case studies and do not aim at reflecting the situation of the countries involved in the case studies.

Table 1- Summary of factors and areas of influence of collectives on individual energy behaviour and lifestyle- Italy

ITALY- Renewable energy cooperative society	
MOTIVATIONS FOR JOINING THE COLLECTIVE	
<ol style="list-style-type: none"> 1- For the founding members, the motivation was related to the personal value of environmental sustainability and individual interest in sustainable practices towards innovative approaches of renewable energy sharing. 2- The willingness to contribute to environmental sustainability. 3- The advantage in terms of saving costs on the energy bill and support in managing costs and consumption relating to one's own domestic energy expenditure. 	
FACTORS OF INFLUENCE	AREAS OF INFLUENCE
<ul style="list-style-type: none"> • Finding opportunities for meaningful social interaction in the cooperative experience (e.g., knowing other people, sharing experiences and good practices). • Change of mindsets about daily energy behaviour (e.g., acquiring new and more complete information on renewable energy production). • Finding new drivers for maintaining a sustainable lifestyle. 	<ul style="list-style-type: none"> • Changing harmful habits and reinforcing good habits, adopting more environmentally friendly behaviours also in other domains of their daily life choices, not only in their direct energy consumption: housing, recycling, and mobility choices. • Higher sensitivity and attention to a whole series of aspects related to environmental sustainability. • Increasing the individual awareness and acceptance of renewable energies, encouraging also a personal reflection on the links between individual behaviours, energy consumption and generation, prompting sustainable behaviour change such as energy conservation.
ENABLING FACTORS OF THE COLLECTIVE	
<ul style="list-style-type: none"> • The motivations and enthusiasm of the founders and early subscribers of the cooperative investment. • For the investors that decide to join the cooperative, the possibility to have fiscal credit because the cooperative is considered an innovative start-up. 	

Table 2- Summary of factors and areas of influence of collectives on individual energy behaviour and lifestyle- Spain

SPAIN	
MOTIVATIONS FOR JOINING THE COLLECTIVE	
1- The main motivator is the personal commitment to sustainability and, in the case of the founders of the collective, their personal situation that allowed them to undertake new projects. 2- The possibility to obtain sustainable shared mobility and generate a positive impact in their own city and territory.	
FACTORS OF INFLUENCE	AREAS OF INFLUENCE
<ul style="list-style-type: none"> The role of the leaders, the internal discussions and the exchange of information within the collective. The cultural change deriving from participating in the collective and an increased awareness regarding the effects of an unsustainable lifestyle. 	<ul style="list-style-type: none"> Change in the household energy supplier to a more sustainable one. Considering other types of sustainable consumption, in other domains such as electricity or communications.
ENABLING FACTORS OF THE COLLECTIVE	
<ul style="list-style-type: none"> The cooperative tradition in Catalonia is one of the enabling factors for the creation and functioning of the collective. The previous experience of the core members of the collective in participating in another energy-related collective. The public funding received as a yearly grant guarantees the functioning of the collective. Well-organised civil society in Catalonia. 	

Table 3- Summary of factors and areas of influence of collectives on individual energy behaviour and lifestyle- Bulgaria

BULGARIA- Home owners' association	
MOTIVATIONS FOR JOINING THE COLLECTIVE	
1- Willingness to improve the structure and comfort of the building. 2- The requirement that collectives of homeowners had to be officially registered in order have access to public funding. 3- Structural strengthening of the building and prolonging its life.	
FACTORS OF INFLUENCE	AREAS OF INFLUENCE
The role and engagement of the different members of the collective entail different influencing factors. For most members of the collective, the main influencing factor has been indeed the engagement and role model of the front-runners.	Introducing measures for reducing the energy consumption of the household.
ENABLING FACTORS OF THE COLLECTIVE	
<ul style="list-style-type: none"> The role of the promoters and leaders of the collective. The long-existing contacts between the inhabitants and the confidence in the people who had been acting for many years as leaders of the informal collectives. The interest of the main actor of the collective in the topic of building renovation provoked by public communication campaigns. 	

Table 4- Summary of factors and areas of influence of collectives on individual energy behaviour and lifestyle- Norway

NORWAY- Tinny houses in Svartlamon	
MOTIVATIONS FOR JOINING THE COLLECTIVE	
<ol style="list-style-type: none"> 1- The motivation for the tiny house owners to be a part of this collective was mainly that this was an area that allowed the construction of tiny houses. The more experimental building code in the area was essential for their choice. 2- For the rest of the members of the collective, the motivation for joining the collective was to keep the living costs as low as possible, to facilitate lives that are free from what is perceived as the pressure of capital. 	
FACTORS OF INFLUENCE	AREAS OF INFLUENCE
<ul style="list-style-type: none"> • The small size of the tiny houses is considered as a factor of influence as it signifies a material limitation of available space, and hence works to discourage excess consumption. • Along with the smallness in material and size, the socialization process of the member is another important factor since the tiny houses owners adopt many practices from the area's pre-existing culture. 	<ul style="list-style-type: none"> • The common value of non-consumption mainly influences their lifestyles. • Adoption of a low-impact lifestyle, where the cultural and social capital has a high importance. • Individual lifestyle changes associated with the use of water and towards re-use oriented behaviour.
ENABLING FACTORS OF THE COLLECTIVE	
<ul style="list-style-type: none"> • The creative environment of Trondheim was one factor for the creation of the collective in its beginning. • The understanding and acceptance of the municipality was essential for the initiative and the creation of the association. Hence, while this is a clear case of bottom-up development, its present form also depends on pragmatic co-existence with local government. 	

Table 5- Summary of factors and areas of influence of collectives on individual energy behaviour and lifestyle- Turkey

TURKEY- Renewable Energy Cooperative	
MOTIVATIONS FOR JOINING THE COLLECTIVE	
<ol style="list-style-type: none"> 1- Meeting the domestic energy demand through a local initiative, obtaining a profit from this activity and ensuring environmental sustainability. 2- The personal interests, world-views and the professional status and educational background of the founding members also shape their attitude towards participation in Renewable Energy Cooperative. 	
FACTORS OF INFLUENCE	AREAS OF INFLUENCE
<ul style="list-style-type: none"> • Considerable increase in local people's awareness regarding the sustainable energy development. • Considerable increase in the organizational capacity of the involved people. • New knowledge is derived regarding the project management. 	<ul style="list-style-type: none"> • Considerable improvements concerning the perception of cooperative members on the importance of environmental sustainability. • Considerable improvements concerning the legislative knowledge of cooperative members regarding the renewable energy cooperatives' establishment process.
ENABLING FACTORS OF THE COLLECTIVE	
<ul style="list-style-type: none"> • The motivation and pro-environmental attitude and belief of the founding members. • Financial gain as a side-benefit. 	

Table 6- Summary of factors and areas of influence of collectives on individual energy behaviour and lifestyle- Austria

AUSTRIA- Community Supported Agriculture	
MOTIVATIONS FOR JOINING THE COLLECTIVE	
1- Awareness of the impacts of personal lifestyle on future living conditions of the next generations and the willingness to carry out a more sustainable and healthy way of living and consuming. 2- To create a win-win situation for the farmers and the consumers. 3- Participation in the collective as a community and social aspect. 4- To change from a more academic working environment to the practical realisation of sustainable farming.	
FACTORS OF INFLUENCE	AREAS OF INFLUENCE
The idea of sharing - in the case of the CSA sharing the land, the food, the costs, and the risks – has initiated ideas of sharing in other areas of personal life.	<ul style="list-style-type: none"> • Shared mobility: cargo bike with the intention of sharing it for inner-city-transport. • Shared energy: renewable energy production in the residential building. • PV installation on private house and purchase of an electric car. • Reduction of personal meat consumption, increased awareness about food production as well as about consumption and its consequences in general.
ENABLING FACTORS OF THE COLLECTIVE	
<ul style="list-style-type: none"> • The beliefs and values of the participants: the willingness of the promoters and the members of the collective to comply with principles of solidarity economy of shared risks, responsibilities and benefits on a small scale in farming. 	

4.2 Conclusions

As outlined in the introduction, the main aim of Task 5.6 was to analyse the role of organised collectives in influencing energy consumer/prosumer behaviour and to study how they interrelate with the identified energy culture aspects such as energy lifestyles and enabling factors. To do so, several case studies were conducted in six countries throughout Europe (Italy, Austria, Bulgaria, Norway, Spain, and Turkey) with the objective to assess to what degree individuals and their individual energy behaviour are influenced by the fact that they gathered in collective energy-related actions and in collective energy-related structures.

As a result of the analysis carried out of the different case studies, the following conclusions can be drawn of the different countries:

The **Italian** case is based on the possibility to achieve a sustainable energy community and energy citizenship in which people can directly participate in the country's energy transition and in a market that has excluded them. The collective offers a model that is suitable for people who "are interested in environmental issues and want to do something to contribute but are not sure how to", and to increase sensitivity in those who do not adopt pro-environmental behaviours. The role of the members can be considered twofold, that is, investors and activists. The case study shows that collective influence its members in several aspects (adopting more environmentally friendly behaviours also in other domains, increasing the sensitivity and attention to environmental sustainability and increasing the individual awareness and acceptance of renewable energies) and that the sharing and exchange of experiences among its members is a key factor for this influence to happen.

In **Spain**, the case of the electric carsharing collective emphasises the importance of the previous pro-environmental attitude and behaviour of the founding members of the collective as well as their previous experience in participating in another energy-related collective. The case study shows the strong links between the mobility sphere both with the use of renewable energy or the willingness to have a prosumer role in other areas. This cross-fertilisation among collectives is to be considered as a way of promoting changes in citizens' behaviours or lifestyles. In addition, another remarkable factor of the collective for influencing its members is the high engagement of its members in the activities of the collective and the exchange of information and experiences through the local groups and connectors. Mainly the former plays a key role in influencing the lifestyle of the members of the collective.

In **Bulgaria**, the case study shows that the establishment of the formal collective was comparatively easy due to the long-existing contacts between the inhabitants and the trust built up over many years with the leaders of the informal collectives. The role and initiative of the leaders was essential in the motivation of other members to join the collective, its development and, in some way, they have become an influencing factor for the change in the behaviour of the members of the collective. Those people have triggered more awareness regarding energy efficiency than the collective itself.

The **Turkish** case study shows how the barriers in the framework conditions can risk the success of collective actions. The attitude and efforts of enthusiastic individuals are critical in triggering the collective approaches and collective energy actions. However, even though the collective actions may be initiated by a core group of individuals, they cannot succeed without interest and contribution from the community or society. The Turkish case study reveals how the insufficiency of funds, financial support or incentives and the problems related to land acquisition hinder the progress of the collective and the achievement of its objectives.

In **Norway**, the analysis of the Svartlamon association and the tiny houses movement shows how an experimental urban ecology area can trigger innovative building initiatives that experiment what it could mean to live a low energy lifestyle, and how such lifestyles can be produced through different relations with broader infrastructures. The case study shows that although the motivation of the tiny houses owners was related the possibility to place the tiny houses in the area, these tiny houses owners have adapted to the Svartlamoen values and energy practise and, therefore, changes in their lifestyles have occurred, living a low energy lifestyle with the culture of sharing and reducing the overall resources consumption. The case study also shows that alternative and counter-culture

initiatives, behaviours and lifestyles somehow relate to the energy transition and that allowing the experimentation of new social model, public authorities can support more sustainable lifestyles and that municipalities are key stakeholders for facilitating local grassroots initiatives like this.

The **Austrian** case study is an alliance of consumers and producers of agricultural goods, which in principle does not address any of the three ECHOES technology foci. The main objective of the collective is to promote the principle of agroecology. However, the case study shows how the strong personal commitment to sustainable development and the membership in the collective can trigger the change in other areas of personal lifestyle more related to energy.

In most of the cases, it can be clearly seen how the previous pro-environmental behaviour and concern for sustainability issues has enabled the creation of the collective or the participation in them, even without any support from public institutions. It can also be perceived that this previous awareness facilitates the permeability of the members of the collective in terms of changing their behaviour and lifestyle. It can be derived from this that social and environmental activism through organised collectives is a factor influencing energy consumer/prosumer behaviour.

In the cases where there has been support from public institutions, in terms of financial support or facilitating the creation of innovative spaces for the experimentation of new social practices and local grassroots initiatives, the previous awareness still plays a key role for the creation of the collective. And it is the closeness of the members, their constant exchange of experiences, and the bottom-up approach of the initiatives which facilitates most the influence of the collective on its members.

4.3 Recommendations for policy makers

WHAT IS THE SIGNIFICANCE OF THE COLLECTIVE FOR THE ENERGY SYSTEM TRANSFORMATION?

Collectives foster the implementation of innovative organisational models and entrepreneurship ideas, serving sometimes as starting point for a new community and organisational model. Innovation in the field of sustainable energy consumption can be related not only to the development of new technological material devices, but also to the implementation of innovative organisational models and entrepreneurship ideas in the service sector, such as for example the development of more participatory and shared forms of energy production and conscious consumption.

Such new practical and sometimes locally specific community and organisational models can seed the type of socio-cultural change necessary to facilitate the transition to a low carbon society. They may create awareness which reaches a range of different final users in their specific daily life decision contexts. Local and user-based organisations may assist policy makers in evaluating the benefits of providing support to renewable energy communities.

After joining collectives, members often change their behaviour towards sustainability, even in areas that are not the core theme of the collective. Some of these changes are small changes in the daily routine, but also changes in other areas of individual energy-related behaviour could be initiated, e.g. the acquisition of an electric passenger car, sharing a private passenger car, an electric cargo bike for inner-city transports shared by the dwellers of a residential building, the installation of PV and the thermal renovation of a residential building, occasionally switch off the TV or other appliances, or buying fewer clothes – all these have been reported in the case studies.

HOW TO FOSTER AND SUPPORT SUCH COLLECTIVE STRUCTURES IN POLICY MAKING – SOME RECOMMENDATIONS

Generally, the main aim could be to provide a policy framework for small scale actors and collectives that enables to invent and test alternative (i.e. fair, participatory and solidary) economic relationships with mutual benefits for producers and consumers. It has been shown in some case studies that experiences of such collectives may have an impact on the individual energy relevant behaviour also in other areas.

In energy policy, the “Clean Energy for all Europeans” package with the recasts of the renewable energy directive (REDII)¹⁴ and the electricity market directive (EMDII)¹⁵ provide basic definitions and requirements for the activities of individual and collective self-consumption as well as for two types of energy communities. Specifically, “renewable energy communities” (defined in the REDII) and “citizen energy communities” (defined in the EMDII), allow citizens to collectively organise their participation in the energy system. These new concepts open the way for new types of energy initiatives aiming at, in particular, the empowerment of smaller actors in the energy market as well as an increased decentralized renewable energy production and consumption (prosumption).

Financial support schemes

There is without any doubt a need of financial and awareness incentives from the public administrations to this kind of collective and cooperative projects. This may be in form of incentives for renewable investments, tax exemptions, purchasing excess production, making grid connections easier for renewable energy production facilities, and providing access to convenient funding opportunities. Expectations of individual economic gains are also sometimes pull factors for individuals to participate in collective energy actions. The risks of high initial costs and long payback periods, also lifetime costs could be alleviated by policy measures, encouraging individual as well as collective energy actions.

Support in communication and organisational issues

Schemes that support the collectives regarding participation management and opening access to a wider community, would make participation in collectives easier. As in some cases, opposing approaches of the local vs. central government representatives have been observed, policies fostering the coordination and consistency among public actors, but also among stakeholders should be developed.

In communication, policy makers can lead the way in communicating about the benefits of renewable energy. This could, e.g. include to set focus on using information technologies for the visualization of the real-time energy consumption, CO2 emissions and the financial gains for each household of a collective. An important aspect would be not only to highlight the economic benefits for those who get involved in a collective, but also the broader societal opportunities that could eventually be caught.

Raising awareness and promoting information

Awareness raising within the collective is, as mentioned above, a central aspect of its effect on the energy behaviour of its members. Especially when collectives include a systemic view in their awareness-raising (on ecosystems, energy economy...), it is more likely broken down into the lifestyle of the members.

The “informed decision-making” – also with regard to systemic interrelations – in collectives can be actively supported by policy-making, for example by providing the opportunity for regular meetings with technical and communication experts, generally, providing expertise and advice, including on legislation so that regulatory issues can be easily understood by any relevant stakeholder group.

¹⁴ Article 2(16) Recast Renewable Energy Directive ‘Renewable Energy Community’

¹⁵ Article 2(11) Recast Electricity Directive ‘Citizen Energy Community’

Secure and consistent legal framework

Uncertainty regarding legal prescriptions for collective activities, especially if they are frequently amended, is a barrier, as is inconsistency between related legislation. So, there is the need for a dependable and clear legislation as well as for the harmonization of different legislation frameworks (at different administrative levels). As mentioned at the beginning, it is important to have supportive mechanisms for collective action at various administrative levels with an explicit accent on the key role of clear and accessible rules for their implementation at various administrative levels.

Providing a framework for independent development, especially in municipalities – important role of municipalities

It is needed that the initiatives grow locally, with their own particularities, but under a common structure. This structure could be supported by the local authorities. As, even though the collective actions may be initiated by a core group of individuals, they cannot succeed without interest and contribution from the community or society. Policies should help to increase awareness of such initiatives and include sharing of relevant information at different levels of the community.

As it was demonstrated by some cases in this report, municipalities could serve as testbed for experimentation with collective approaches in energy-related fields. Generally, municipalities could be key stakeholder for facilitating local grassroots initiatives. Providing areas and facilities for experimentation, participation and self-determination could encourage frontrunners to develop innovative off-the-beaten-path collective approaches, thinking and practices. Local and urban governments have a unique opportunity when it comes to doing such experimentation. Innovation in the field of sustainable energy consumption is not limited to technology but is also related to innovative (collective) organisational models and entrepreneurship ideas such as participatory and sharing models of energy production and conscious consumption. This should equally be explicitly supported by policy-making.

On the one hand promote the frontrunners, on the other hand also consider addressing the followers.

Based on the idea of multiplying this type of small-scale collective, policy measures should consider:

- Innovative collective approaches and actions require the attitude and efforts of enthusiastic individuals, as does the drive to create collectives. Policies should therefore give such individuals freedom to engage in dialogue and take initiatives and support the resulting individual and collective actions. This can be achieved by providing platforms for meeting peers, communication and spreading their ideas, formulating incentives to cover startup costs for implementing collective approaches, to enhance the access of the enthusiastic individuals to the relevant knowledge-base, or consultancy.
- At the same time, policy-making should not forget to consider the perspective of larger groups of the population (late followers) with a different way of thinking, different willingness to invest and different risk tolerance. They need a different kind of support, mainly concentrated on security of investments, limited personal engagement and risk minimisation.

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6 ANNEX I – INTERVIEW GUIDE FOR CASE STUDIES

Questionnaire / guide for interviews of individual persons

The **objective of this questionnaire** is to find out whether or not collectives are suitable “vehicles” to get individual persons aboard the energy transition, and to understand the reasons: which settings of the collective (e.g. core activities, energy culture, opinion making process) and the motivation and engagement of the individual in the collective may be favourable for changing the individual person’s energy-relevant lifestyle, including the way of thinking, awareness and acting in energy relevant daily practice.

At **least three persons with different roles in the collective** shall be interviewed per collective. The identification of the interviewees would ideally be supported by someone in the collective who has good knowledge of the collective’s members their role and their contribution to the collective. Usually, there are some **members actively contributing** and leading the collective’s activities and opinion making process and other **members more passively following**. Ideally also a **person involved during the formation period** of the collective should be interviewed, to capture the initial motivation of the collective and enabling factors.

It is proposed to have the **interviews onsite of the collective**, e.g. during an excursion visiting the activities. This supports the understanding of the collectives’ characteristics as well as the motivation of the interviewees.

All 3 (or more) interviews have two parts:

1. **Part 1 has the objective to describe the collective.** It includes questions on material culture, cognitive norms and energy practices of the collective.
2. **Part 2 relates to the individual:** the motivation to join the collective, the expectations in the beginning and whether they have been fulfilled or not, and by checking what the individual has taken from the experience of being part of the collective into daily life and changing the individual person’s way of thinking, awareness and acting in energy relevant daily practice.

Part 1 - collective perspective:

Description of the collective

1. What is the core objective of the collective?
2. How many members does the collective have? Is there a max number of members?
3. What is the technical size of its activities? (e.g. kW PV installed, ha agricultural land, 1 electric car...)
4. In case the collective activities require a financial investment / yearly contribution, how much is this for each member (e.g. EUR invest, EUR/year)? Is it the same for each member? On the contrary: what is the revenue / gain for each member (e.g. kWh electricity / year, EUR / year, agricultural harvest / year)?

Foundation of the collective

5. What was the motivation, promise, expectation to form the collective?
6. Has the foundation of the collective been supported by the legal framework, or any incentives, or networks? Does the collective currently profit from any support from outside? Would the collective be able to exist without the legal framework and incentives?

Activities of the collective

7. What are currently the concrete activities of individual members within the collective? Which different roles, tasks, main and auxiliary activities? How much time do members invest (per month or per year) into the different activities of the collective? How often do the members meet in order to do physical work, discuss, take decisions, meet with external persons... simply exchange or celebrate?
8. Have there been changes in activities over time (during the past years?) If yes, what has changed?
9. On which energy-related technologies (energy consuming, energy producing) are the collective's activities based?

Values / culture of the collective

10. What are the values (mission statement, statutes etc.) of the collective?
11. How is the discussion, opinion and decision-making process in the collective?
12. What do you think is the position of the collectives' values and activities in the society in your country? Is it "mainstream", is it "trendsetting" or is it "outsiders"?

Part 2 - individual perspective:

Motivation and expectations

13. What has been the intention/motivation for you to engage in the collective? Have your expectations been very clear in the beginning (e.g. "I have always been looking for this collective needed to bring my intentions into practice") or somehow vague (e.g. "I'm curious what this is about")?
(Remind the interviewee that we are considering a wide range of possible intentions: it could be the thematic focus of the collective like energy transition, climate protection, energy independence, it could be due to information provided by public administration, but also a recommendation by friends, or just looking for a group for socializing...)
14. Do you feel satisfied with the collective practice? Which expectations have been fulfilled, and which not? Which experiences have been encouraging and which discouraging?

Role and activities

15. How do you describe your role in the collective? How do you engage practically? Do you have a specific role? Do you consider yourself as active creator, opinion leader? Or as a more passive participant, following other members? What do you think you have contributed to the collectives' evolution?

Influence on energy-conscious behaviour

16. Has your engagement in the collective changed something in your individual life, in your way of thinking, awareness and/or acting in energy relevant daily practice? Would you say that it has contributed to an energy-conscious behaviour lifestyle? In which areas, what has changed?

(Remind the interviewee that we are considering a wide range of possible effects on individual life: e.g. being part of a PV energy cooperative might have raised personal interest on electricity markets; enjoying the collective action and feeling the power of acting together has initiated collective action also in other areas; have discussions in the collective changed certain values of the individual? Has it changed the use of energy-related technologies of the individual (in housing, mobility, consumer goods, waste reduction)

17. How has your individual life been influenced? What have been the important factors? By other individuals, or the activities themselves, or group discussions, the values of the collective, etc...and why? Do you think that some members are more influenced by the collective than others? Why is that so? On the other hand, has the collective been evolved by your influence or by other members, and how?